

JPRS-CAR-87-055

3 November 1987



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# ***JPRS Report***

# **China**

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# China

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3 NOVEMBER 1987

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**Hu Jiwei on Role of Public Supervision**  
*06250621 Beijing RENMIN RIBAO in Chinese*  
*19 Oct 87 p 5*

[Article by Hu Jiwei [5170 4921 0251]: "A Brief Talk on Supervision with Public Opinion"]

[Text] In China, all power belongs to the people, and the people are the masters of the state. This is the fundamental principle of our socialist political system. Article 2 of the constitution stipulates: "The people administer state affairs and manage economic, cultural, and social affairs through various channels and in various ways in accordance with the law." Article 3 of the constitution stipulates: "The NPC and the local people's congresses at different levels are instituted through democratic election. They are responsible to the people and subject to their supervision." Article 41 of the constitution also concretely specifies citizens' rights to exercise supervision over state organs and functionaries. According to the stipulations of the constitution, the work of the state organs in all fields should be put under the people's supervision, and this supervision can be realized through various channels and in various forms. The people's congresses exercise legitimate supervision over the government departments; the supervisory and auditing departments of the government exercise administrative supervision over other government departments, and administrative supervision is also carried out inside the government system from top to bottom; the procuratorates exercise judicial supervision over other departments. The general public should also be able to exercise supervision through the opinion media, that is, to exercise opinion supervision.

Now, all of our opinion media are under the leadership of the party, so opinion supervision first embodies the party's supervision over the state's work in all fields. At the same time, the opinion media also belong to the people, so opinion supervision also represents the people's supervision over the state's work in all fields. The party is the leadership core of our socialist cause, so such supervision will also be exercised over the party's work and over the cadres' behavior. The party should not only place state work in all fields and state cadres at all levels under the people's supervision, but should also subject the party's work and party cadres to the people's supervision. The party should guide the masses to exercise this supervision correctly so that they can effectively supervise the work of the party and the state and can resolutely guarantee the implementation of the party's principles and policies.

Opinion supervision is extensive social supervision, and is also the people's self-supervision. It embodies the management by the masses over state affairs and the entire society. With hundreds of millions of people observing, criticizing and remarking, and writing comments, what a great force will be formed!

Since opinion supervision can play such a great role, we should more widely and effectively exercise such supervision. A precondition for opinion supervision is that the masses can access timely and authentic information about the state affairs. Meanwhile, a socialist democratic atmosphere must be cultivated in light of the principles of "allowing people to speak out without reserve" and "accepting the warnings included in the words of the critics who should not be blamed for making criticism" as our party always advocates. Only when the people are fully aware of the state of affairs and can fully express their opinions can they really exercise opinion supervision which is favorable to socialist construction and reform.

In my opinion, opinion supervision should include the following concrete contents:

First, supervising the making of policy decisions. The opinion media should continuously give expression to the actual conditions and various opinions in all fields and organize discussions on major issues, especially discussions on the feasibility of major policy decisions. This will provide important grounds for the party and the state to formulate new policies, to test the correctness of some established policies, to make additions to the existing policies, and to revise the policies. This is a necessary condition for establishing a democratic and scientific decisionmaking process.

Second, supervision over routine work. The opinion media should continuously and fully report the actual conditions and problems of all fields of government work, expose and criticize all words and deeds that violate the party's principles and policies, being especially critical of the incorrect behavior of some cadres so as to prompt cadres at all levels to correctly execute the policies laid down by the party and the state and quickly overcome shortcomings and correct mistakes. At present, stress should be placed on carrying out resolute struggle against bureaucratism and other unhealthy styles of work which obstruct reform and opening up.

Third, supervision in the legal aspect. The opinion media should mobilize cadres and the masses to participate in studying and discussing the legislative issues in the course of enacting laws in light of the legislative procedures; on the other hand, they should prompt all party and government organs, and cadres at all levels, especially leading cadres, to strictly abide by law and discipline, and raise the people's legal consciousness so that all citizens will be more conscious in abiding by law and know how to protect their own legitimate rights and interests according to law. An important part of opinion supervision is to expose and criticize various infractions of the law and violations of discipline to ensure that all people are equal before law and to support and supervise the enforcement of the laws by the judicial organs in the serious handling of cases of law-breaking.

Fourth, supervision in the moral aspect. The opinion media should praise and publicize all democratic, scientific, progressive, and civilized new morals and values, and criticize and denounce all backward, decadent, and barbarous old morals and habits, thus helping form an opinion force in society to encourage the healthy trends and check the unhealthy trends. This will play a big role in establishing new morals and values among the people, especially among young people, and promoting the building of socialist spiritual civilization.

Fifth, supervision in the theoretical aspect. It is not quite proper to place theory and supervision together, but I cannot find a more suitable word to express my idea. What I mean is that the opinion media should mobilize cadres and the masses to study various theoretical issues in the course of reform and opening up, encourage them to boldly and frankly express different opinions and to exchange ideas on an equal footing and in a united atmosphere so as to complement each other and to jointly raise the Marxist theoretical level. This will also help people better understand the policies for the building of socialism with Chinese characteristics and better distinguish and resist various erroneous viewpoints and ideas that obstruct reform and opening up.

The key to the exercise of opinion supervision lies in gradual changes in people's ideas. Cadres at all levels, especially leading cadres, should establish the idea that the people are the masters of the state. We should bear in mind Comrade Mao Zedong's instruction: "Within the ranks of the people, it is criminal to suppress freedom, to suppress the people's criticism of the shortcomings and mistakes of the party and the government, or to suppress free discussion in academic circles." "In any society and at any time, there are always two kinds of people and views, the progressive and the backward, that exist as opposites struggling with each other, with the progressive views invariably prevailing over the backward ones; it is neither possible nor right to have 'uniformity of public opinion.' Society can progress only if what is progressive is given full play and prevails over what is backward." ("Selected Works of Mao Zedong," Vol 5, pp 157-158) The masses will have to learn how to better exercise their rights for free speech and a free press as specified by the constitution, and they should raise their sense of social responsibility and achieve a uniform understanding of their civil rights and duties. Only thus can the people become more conscious and active in exercising and safeguarding their democratic rights through making use of the opinion media and giving full play to their role in opinion supervision.

The realization and effective guarantee of opinion supervision still relies on codifying this into law. Therefore, it is indeed a pressing task at present to formulate a press law.

### **Theoretical Exploration of Initial Stage of Socialism**

06270101 Beijing JINGJI YANJIU in Chinese  
20 Sep 87 pp 9-14, 67

[Article by Rong Jingben [2837 2417 2609] and Feng Wenguang [7458 2429 0342] of the CPC Central Committee's Bureau for Translation: "A Theoretical Exploration of the Initial Stage of Social Development"]

[Text] Since the 3d Plenary Session of the 11th CPC Central Committee, the party Central Committee has affirmed that at present our country's society is in the initial stage of socialist development, and has put forward the task of reforming in an overall way the economic and political structures. This will have a far-reaching influence on our country's undertaking of socialist construction.

How we are to understand the characteristics of the initial stage of socialist development is a topic on which the theoretical circles need to do serious research. We believe that first we have to clarify Marx and Engels' exposition on the stages of socialist development as well as Lenin's theory of the transitional stage and Stalin's theory of socialism and understand the way these were used in our country's practice as well as the problems involved. Thereby we will be able to deeply understand that the "initial stage" theory is a product of combining Marxism-Leninism with the reality of our country's socialist construction, and thus master the economic and social characteristics of the "initial stage."

### **Marx and Engels' Exposition on the Stages of Socialist Development**

Marx and Engels did not clearly differentiate the two stages of socialism and communism and in their works communism and scientific socialism are often synonymous. However, in the "Critique of the Gotha Program" Marx did expound his views on the future stages of socialist development. This had a deep influence on the ideas of people who came after him in respect of the stages of socialist development. Marx' exposition can be summarized as follows:

1. "Between capitalist and communist society lies the period of the revolutionary transformation of the one into the other. Corresponding to this is also a political transformation period in which the state can be nothing but the revolutionary dictatorship of the proletariat." (Footnote 1) (Marx: "Collected Works of Marx and Engels: Critique of the Gotha Program," Vol 19, p 31)

2. In the first stage of communist society, because in all areas, in the economic, the moral and the spiritual fields, it brings with it the vestiges of the old society from which it emerged, in the distribution of the means of consumption it still implements the principle of commodity exchange at equal value, and "there is a 'ratio' between the rights of producers and the labor they supply."



3. In the quite high stage of communism, the situation whereby people slavishly submit themselves to division of labor will be eliminated, each person will be able to develop in an overall way, material prosperity will fully emerge following the development of the productive forces and society will realize the situation of "from each according to his ability and to each according to his needs."

The above was only an idea in principle put forward by Marx in respect of the stages of future social development. As to the questions of how long the transitional stage would be, how the transfer was to be effected and what the specific economic and social organizational forms would be like in the future society, it should be noted that no ready-made answers were provided in Marx and Engels' works. On the contrary, Marx and Engels repeatedly warned people that creation must be based on future specific historical conditions. Although Marx and Engels spoke of "cooperative," "leasing," and other transitional economic forms, in general they were extremely cautious about the future. For example, Engels once advised others that under the existing conditions they should not write about how to make the transition to communism.

### **The Theory of a Transitional Stage and Stalin's Model**

In the period before the October Revolution and in the period of war communism after the victory of the revolution, Lenin basically envisaged the stages of socialist development on the basis of the ideas of the "Critique of the Gotha Program." He explicitly took what Marx referred to as the first stage of communism and called it socialist society and took what Marx referred to as the high level of communism and called it communist society. In "The Tasks of the Proletariat in Our Country's Revolution" which he wrote in April 1917, he pointed out: "It is possible to effect a direct transition from capitalism to socialism (but not to communism—the high-level stage of the new social form)." Overall in this period Lenin held firmly to the idea of a direct transition. Lenin felt that the material conditions for a transition from the imperialist period to socialism were already in place. "State monopoly capitalism is the most complete material preparation for socialism, the threshold of socialism, a rung on the ladder of history between the rung called socialism and which there are no intermediate rungs." (Footnote 2) (Lenin: "Selected Works of Lenin: The Impending Catastrophe and How To Combat It," vol 3, p 164)

From practice, Lenin learned that the existing Soviet Union was indeed far from the first stage of communism as envisaged by Marx. Thus he paid attention to studying the transitional nature of the society at that time and put forward the idea of indirect transition.

The idea of indirect transition was mainly formed in the period when the policy of war communism changed to the New Economic Policy. Lenin accepted that the method of war communism direct transition would not work in Russia and was "a mistake." In 1921, Lenin decided to "put commodity exchanged in prime position and make this a major lever in the New Economic Policy." (Footnote 3) ("Collected Works of Lenin: Tenth All-Russia Conference of the Russian Communist Party (Bolshevik)," Second edition, Vol 41, p 377) He held that the transition to socialism requires "intermediary paths, methods, means and instruments." (Footnote 4) (Lenin: "Selected Works of Lenin: The Tax in Kind," Vol 4, p 524) At that time, the stages of development of soviet society were to be: tax in kind (commodity exchange)—large-scale industrial and agricultural product exchange (socialism)—communism. In this situation Lenin repeatedly stressed that the implementation of the New Economic Policy was a "retreat," was the adoption of a circuitous method, and so on.

After Lenin gradually changed from the idea of direct transition to the idea of indirect transition, changes also began to occur in his ideas of the economic nature of socialist society. In particular, through the practice of the New Economic Policy, Lenin began to ponder the question of whether socialism was the same as what Marx referred to as the first stage of communism, that is, whether or not the commodity economy could be abolished.

In his article "On Cooperation," when talking about the cooperatives which were the organs of circulation and the organs of commerce at that time, he pointed out: "The system of civilized cooperatives is the system of socialism," that "the growth of cooperation is identical with ... the growth of socialism," and "thus, we have to admit that there has been a radical modification in our whole outlook on socialism." (Footnote 5) (Lenin: "Selected Works of Lenin: On Cooperation," Vol 4, pp 684, 687) From the relevant works Lenin wrote at that time, we can see that the changes in Lenin's idea on the socioeconomic nature of socialism, mainly manifested in his socialist economic concepts, already included the following: commerce, the principle of commercial profit, the economic accounting system and the enterprise responsibility system, individual material interests and so on.

However, we should recognize that the changes in Lenin's ideas on the nature of the socialist society and economy still did not transcend the confines of his theory of indirect transition. On the one hand, he saw the differences between the actual Soviet socialist society and the first stage of communist society as spoken of by Marx in the "Critique of the Gotha Program" and concluded that the development of cooperatives was the development of localism and understood the economic forms and the forms of distribution in the first stage of communism as spoken of by Marx to be "pure socialist

economic forms and pure socialist distribution." (Footnote 6) (Lenin: "Selected Works of Lenin: 5 Years of the Russian Revolution and the Prospects of the World Revolution," Vol 4, p 661) On the other hand, this differentiation of his was restricted by the belief that it was not possible to make a direct transition to pure socialism, that it was necessary to take a circuitous route and methods and that this was a requirement of the surrounding environment. He wrote: "What dictates our transition to a commercial basis? It is the surrounding environment, the present conditions." (Footnote 7) (Lenin: "Collected Works of Lenin: Seventh Moscow Gubernia Conference of the Russian Communist Party," Russian language Fifth edition, Vol 44, p 218, see Chinese language First edition Vol 33, p 82) Thus he believed that in the relatively long transitional stage there would exist "A socialist main body plus non-socialist supplements" or "socialism plus capitalism." (Footnote 8) (Lenin: "Collected Works of Lenin: Note to N.I. Bukharin," First edition, Vol 36, p 566)

In the New Economic Policy period he did not look at the relationship between socialist components and non-socialist components in the transitional stage in an inflexible way. For example, he held that state capitalism "is, under Soviet political power, three-quarters socialist because we can make the organizers of state capitalist enterprises our helpers." (Footnote 9) ("Complete Works of Lenin: Report on the Present Situation and the Immediate Tasks of Soviet Political Power, delivered to the All-Russian Central Executive Committee," Second Edition, Vol 34, p 237) However, he also felt that "the New Economic Policy has more old things than our previous economic policy." (Footnote 10) (Lenin: "Collected Works of Lenin: The New Economic Policy and the Tasks of the Political Departments," First Edition, Vol 33, p 42)

On the basis of Russia's practice in building socialism, Lenin continually corrected mistakes and carried out new exploration. However, over a few short years, he did not have much time to observe practice and thus he could not provide a systematic theoretical conclusion as to the changes in the stages of socialist development.

Stalin expounded in a quite systematic way on a model of the stages of socialist development. He explicitly referred to the period after the establishment of the Soviet Republic as "the period of transition from capitalism to socialism." (Footnote 11) (Stalin: "Collected Works of Stalin: Conclusions of the Central Committee of the Soviet Communist Party (Bolshevik) on the Political Report of the 15th Congress," Vol 13, p 6) Stalin did not further develop Lenin's idea of the "necessity and inevitability" of the adoption of commercial principles. He viewed Lenin's "socialism plus capitalism" in a mechanical way and simplified the relationship which exists between socialist factors and nonsocialist factors in the period of transition. He saw the relationship between the two types of factors simply as a relationship of one defeating the other. At the end of the 1920's,

Stalin held that the time was ripe for the socialist attack on capitalism and thus he launched the attack on all fronts and there was a change from attempting to restrict and squeeze out capitalism to attempting to eliminate it. An important part of this attack was the efforts made on the ownership level to greatly increase the socialist ownership components. Stalin saw the degree of development of public ownership as the ultimate indicator of the building of socialist society. On 25 November 1936 at the Eighth Extraordinary All-Union Congress of Soviets, Stalin declared in his report on the Soviet Union's draft constitution: "Our Soviet society has already basically achieved the realization of socialism and the establishment of a socialist system. That is, we have realized the system which Marxists also refer to as the first stage or low-level stage of communism." (Footnote 12) (Stalin: "Selected Works of Stalin: On the Soviet Union's Draft Constitution," Final Volume, p 399) He enumerated the major indicators that a socialist society had been established: 1) "Socialist production forms are now the dominant factor in our country's industry." 2) "In agriculture ... there is mechanized production which uses new equipment, has new technology and which is the largest in scale in the world. This is the all-embracing system of collective farms and state farms." 3) "All commodity circulation is in the hands of the state, cooperatives and collective farms." 4) "All exploiting classes have been eliminated." (Footnote 13) (Ibid., pp 393-94) 5) The realization of the principle of "from each according to his abilities, to each according to his work." Stalin's declaration of the completion of the socialist system in the Soviet Union was in fact a declaration of the beginning of the transition of Soviet society toward communism. In "Problems of the Soviet Union's Socialist Economy," he pointed out three basic decisive conditions for the transition to communism: Outstanding growth in the production of the means of production; the raising of the level of collective farm ownership to the level of whole-people ownership and the use of the product exchange system to replace commodity circulation; and the overall development of the members of society. He stressed: "Comrade Yaroshenko does not understand that if we allow group ownership of collective farms, commodity circulation and other economic phenomena to continue, on the one hand we will not be able to obtain rich products with which to satisfy all of society's needs, and on the other hand we will not be able to make the transition to the formula of 'to each according to his needs.'" (Footnote 14) (Stalin: "Selected Works of Stalin: Problems of the Soviet Union's Economy," Final Volume, p 589) Clearly Stalin felt that the major task for the Soviet socialist society in the transition to communist society was further raising the level and limits of public ownership and eliminating the commodity economy.

To sum up, in Stalin's model of social development stages, the first stage is the period of transition from capitalism to socialism, the second stage is the period of the elimination of urban and rural capitalism and the establishment of socialism, and the third stage is the

period of transition from socialism to communism. Stalin's model of socialist development stages is manifested, both in theory and practice, in the following respects:

1) In the three stages of ownership in the socialist period, throughout there are pure socialist factors and non-socialist factors in opposition. 2) The transition through these three stages is mainly manifested in changes in the ownership forms and manifested in the increasing of the degree of public ownership of the means of production. 3) The raising of the degree of public ownership of the means of production is a major guarantee for realizing the superior growth of the means of production and in increasing and developing the productive forces. 4) Following the raising of the degree of public ownership of the means of production and the development of the productive forces, the commodity economy will gradually be restricted and then eliminated. Thereby there will be a transition from distribution according to labor to distribution according to need. Stalin's model of socialist development stages held the dominant position in the Soviet Union for the subsequent several decades.

### **The Background to Our Country Proposing the Theory of the Initial Stage of Socialism**

The combining of Marxism-Leninism with our country's revolutionary practice led to China achieving victory in the new democratic revolution. History does not allow us to travel the capitalist road, we can only travel the socialist road. This is our only correct choice. However, as to what socialism is and how this road is to be traveled, we truly have no experience. In respect of socialism and communism, there are some principles set down in the works of Marx and Engels. However, there is no ready-made blueprint. In such a situation, we have naturally been subject to greater influence by Stalin and the traditional Soviet Union model.

In 1953, our party put forward the overall line of transition from new democracy to socialism, gradual achievement of the industrialization of the country and the socialist transformation of agriculture, the handicraft industry and capitalist industry and commerce. At the beginning, we placed quite great stress on the characteristics of our country's new democracy but as time went by we were more and more subject to the influence of Stalin's model. In a situation where the economy was backward and the commodity economy not developed, the intervention of state investment and planning was able to speed the course of industrialization. However, seeking progressively greater public ownership and inhibiting market relationships resulted in dislocation of the proportions in the national economy, irrational allocation of resources, and a decline in economic benefits and had adverse effects on the people's lives. For various historical reasons we did not sum up these experiences and lessons in an overall way and instead sought to complete Stalin's overall model of socialist development

stages in a shorter period. We predicted that the productive forces could thus be developed more quickly and material wealth would thus be swiftly increased, and thereby we could make the transition to the higher stage of communism. However, the result of this experiment was that our country's economy entered the period of 3 years of difficulties and the liberated laboring people also tasted the bitterness of hunger. The reality of economic development and this theoretical model became bogged down in a serious contradiction.

In the period of economic difficulties we in fact "retreated" in various areas back to the economic policies adopted in the transitioned period and we achieved good results in the revival of the economy. However, on the theoretical level we did not discard Stalin's model of socialist development stages and instead combined his three-stage model into a single stage, saw the transition from socialism to communism (meaning the higher stage) as a single transitional period and saw socialist society as a transitional society. Thereby we came to the conclusion that the entire socialist stage would be filled with a struggle between the two roads and the two classes of capitalism and socialism and that only by grasping the struggle between the two roads and the struggle between the classes as the key links would we be able to readily solve all problems. We took the words in Marx' "Critique of the Gotha Program" as the defence of this theory and not only saw socialism as a struggle between declining capitalism and newly emerging communism, but even saw the commodity economy and distribution according to labor as vestiges of the old capitalist society. This theory guided practice and ended up leading to the "Great Proletarian cultural Revolution" which brought our national economy to the brink of collapse.

It was with this background that our party proposed the thesis of the initial stage of socialist development, firm adherence to the socialist road under the leadership of the party and firm adherence to the road of reform, opening up, and exploring socialism with Chinese characteristics.

### **The Meaning and Characteristics of the Initial Stage of Socialist Development**

The proposal of the theory of the initial stage of socialism is based on the positive and negative experiences of our country's socialist construction and is a result of studying Marxism-Leninism anew, gaining a fresh understanding of socialism and communism and rethinking the traditional theories of the stages of socialist development. It is the inheritance and development of Marxism. Only if we proceed from this angle will we be able to grasp the meaning and characteristics of the initial stage of our country's socialist development.

1. The putting forth of the "initial stage" theory is directed at the theory which urges rapid transition towards communism. The future stage of socialist development which Marx spoke about is a long-term trend in



the development of human society, and is different from specific stages of social development. In the history of the international communist movement, all the mistakes of skipping stages were committed because this long-term evolutionary trend was confused with the short-term evolutionary trends of specific societies. The "initial stage" theory enables us to clearly understand that the realization of the ideal of the higher stage of communism is something that will take several hundred years to achieve. Our country was formerly a semi-feudal, semi-colonial society. After the PRC was founded, we faced the task of changing an agricultural society into an industrial society. That is, we faced the task of achieving the socialization, commoditization, and modernization of production. This task could only be completed under socialist conditions. However, because of the influence of Stalin's model, the commodity economy was subject to containment and the progress of modernization was affected. Thus, the major task of the initial stage of socialism in our country is the completion of socialist industrialization, commoditization, and modernization. At the same time, we need to reform those ossified models which obstruct the development of the commodity economy. These two aspects are complementary.

2. The "initial stage" theory shows that socialism is continually developing and continually being improved. It has no fixed unchanging model. In the history of the international communist movement, people often remembered specific dogma about achieving public ownership of the means of production and that commodity production will be eliminated, but they forgot the quintessence of Marx and Engels' scientific socialism, that is that on the one hand there must be firm opposition to the exploitation and oppression of the laboring people by landlords and capitalists and on the other hand there must be firm opposition to the situation where workers do not pay attention to accumulation and consume everything, and there must be implementation of the so-called 100-percent egalitarian distribution according to labor. Thus, in the "Critique of the Gotha Program" Marx stressed that it was necessary to pay attention to social accumulation, to reduce management costs, and to raise accumulation benefits, so as to guarantee the greater development of the productive forces. Thereby individuals would have more consumption funds and society would have more welfare, insurance, and emergency funds. Stalin's model was produced under the specific historical conditions of the Soviet Union, the Soviet Union was at that time subject to imperial encirclement and could not but be influenced by the controlled economy implemented in war time. They adopted highly centralized administrative management and material distribution systems born out of the period of war communism. This model does not accord with our task at the present stage of realizing the socialization, commoditization, and modernization of production and basically cannot exploit the superiorities of the socialist system. This is because while this model may be able to achieve a quite high accumulation rate for a time,

investment benefits and economic benefits will gradually decrease, administrative organs will gradually expand, management costs will gradually increase and individual's consumption funds and social welfare funds will see a relative decline. Thus, combining planning and the market, and implementing a planned commodity economy on the basis of public ownership accords both with the characteristics of our country at the current stage and with the nature of the socialist economy, thus allowing the superiorities of the socialist economy to be fully exploited.

3. The initial stage of socialism will develop towards the high-level stage and will not return to the model of centralized power. Marx' basic standpoint in differentiating the stages of future social development was the degree of ripeness of the conditions for realizing mankind's liberation. In this, the subjective conditions are the degree of development of science and technology and the material productive forces, while the objective conditions are the overall level of development of man himself. The overall level of man's development is not only a reflection of the level of the productive forces, but also influences the development of the productive forces. Thus when discussing social development, we must consider the two aspects of the development of the productive forces and the overall development of man as well as the dialectical relationship between the two. From the birth of scientific socialism, Engels had pointed out: "Communism is a doctrine of the conditions for the liberation of the proletariat." (Footnote 15) (Engels, "Complete Works of Marx and Engels: Letter to F.A. Langer [Lang-ge] (29 March 1865)," Vol 4, p 357) Thus, when the founders of scientific socialism were talking about vestiges and maladies of the old society, they often viewed things from the angle of development of people's abilities. Of course, every person lives in certain social, economic and cultural structures and is subject to their restrictions. Realizing each person's overall development is the long-term historical task of human society. Thus, it was only on the banner of the high-level stage of communist society that Marx wrote "from each according to his abilities and to each according to his needs." Here "from each according to his abilities" should mean the overall development of each person. In 1931, in a conversation with the German writer Emil Ludwig, Stalin said for the first time that the common part of socialism and communism is "from each according to his abilities" and that the difference between the two lay in that the former had "distribution according to work" while the latter "distribution according to need." Since then, on the one hand the most important characteristics of the social development stages have been confused and on the other hand the principle of commodity exchange at equal value and distribution according to work have simply been said to be vestiges of the old society. In fact this has resulted in people for a long period concentrating on the narrow aspect of distribution. Clearly this does not accord with Marx' original ideas. Under a highly-centralized administrative management system, enterprises become



appendages of administrative organs and entrepreneurs operational skills cannot be fully brought into play. This results in enterprises losing their vigor, seriously fettering the bringing into play of laborers' enthusiasm and abilities. At the same time, this results in egalitarianism in the distribution of individual consumer products. This violates both in terms of form and contents the principle of commodity exchange at equal value and thereby further obstructs the bringing into play of laborers' abilities and enthusiasm. This is far from the idea of "from each according to his abilities."

It should be recognized that in the initial stage of socialism where our country is changing from an agricultural society to an industrial society, the implementation of the principle of commodity exchange at equal value is not a vestige of the old society, but actually a precondition for bringing people's abilities into play. Thus it can be said that it is a newly-emerged vigorous thing. Those things like feudal separatism, closing the country to international intercourse, bureaucratic and administrative privilege and the monopolies, swindling, and speculation of capitalism which obstruct exchange at equal value are the vestiges of semicolonial and semifeudal society and must be opposed. These are the old things that are going to disappear and are the major obstacles to the development of people's abilities. As to development from the initial stage to a higher stage, that will certainly be the continued innovation by those vital and vigorous persons who have thrown themselves into the reforms, whereby people's abilities will attain greatest development and certainly not the opposite.

4. According to the theory of the initial stage of socialism we must not look at the various forms of public ownership of the diverse forms of operation, including the individual economy, in an isolated or static way. The former theory of a transitional stage usually linked the individual economy and other forms of so-called not-purely-socialist economic forms together with capitalism. We believe that this theory does not accord with the characteristics of our country at the present stage. At present in China many of the individual operators, individual contractors and individuals were born under the red flag, are creating wealth for the state and society, and are carrying out accumulation. They are of benefit in the reduction of state management costs, in increasing individual consumption funds and in increasing social welfare funds. Also, many of them have begun to warmly support and run various types of social undertakings. On the basis of the criterion of the Marxist classics we have noted above, we have no reason to place these people outside socialism. In comparison, there are some state enterprises which are under whole-people ownership and on the surface they are purely socialist in nature. However, they eat from the big pot, their operations are not good, they incur losses year after year and may eat up that which society has accumulated through great hardship. How much scientific socialism is there in this? Thus, we must not use the old convention of "retreat or attack" in viewing these individual operations, resulting

in them not daring to accumulate and having no option but to consume or even seeking "paradise in the next birth" by praying to gods and building graves. We should use the new theory of the initial stage of socialism to guide them and encourage them to accumulate so that they can, following the development of the commodity economy, become socialist entrepreneurs and together build a socialist heaven on earth to really create prosperity for our later generations.

5. The theory of the initial stage of socialism ensures that we clearly understand the necessity of and orientation in strengthening and improving leadership by the party. Only by strengthening communist party leadership will we be able to ensure that a situation of stability and unity is maintained in society and that the economy develops in a direction which is in accord with social interests. Of course, this is not the same as the situation under the old system where the various leaders of party organizations directly managed the economy, and the government, led by the party, managed all economic matters and production operations. This often led to bureaucratism and other maladies and was very harmful to the party. A major task faced in the initial stage of socialism is how to get the government to manage what it should manage and not manage what it should not manage.

The party and the government are the leaders in economic development and reform, but various of their own links, organs and systems which are not in accord with the development of the productive forces are also the targets of reform.

The experiences of the international communist movement tell us that the complexity of the structural reforms often results from this fact. A bias in either of these two aspects will result in bourgeois liberalization giving rise to social chaos, or ossified bureaucracy bringing inertia or obstruction, thus delaying reform.

In this respect, various Western scholars stress privileged interests and the spreading of pessimism and lack of confidence. However, we believe that the key lies in using the new theory of the initial stage of socialism to arm our cadre contingents. For a long time, our doctrinaire understanding of socialism has resulted in some people among us being unable to clearly distinguish between the newly-emerged things and those things which are going to be eliminated. Thus they have been unable to clearly see the road ahead and they have thus paid attention to vested individual interests. Reform is a thorough-going social revolution but it does not involve class struggle and movements. Rather, it is a process of renewed study of socialism as related to our country's actual situation. We believe that with a clear understanding of the economic and social nature of our country at the present stage, we will indeed be able to unify our thoughts and greatly speed the pace of reform.

**Individual Rights in Socialist Economy Discussed**  
*HK280723 Shanghai SHIJIE JINGJI DAobao in*  
*Chinese 12 Oct 87 p 6*

[Article by Zhou Jianming [0719 1696 2494]: "What Rights Should an Individual Have in the Socialist Economy?; An Unavoidable Issue Raised in the Theoretical Circles by the Economic Reform"]

[Text] There is no doubt that we should operate the socialist commodity economy. However, individuals should have the right to operate it. Therefore, we inevitably have to define the rights of an individual in the socialist commodity economy. In the past, there have been some deviations in our understanding of this issue.

When we recognize the socialist economy as a commodity economy and reform the economic structure according to this guiding idea, we have, in fact, raised a basic and very important issue in socialist theory, namely, what rights should individuals have in the socialist economy? Although the theoretical circles are not really aware of this issue today, it is nevertheless an unavoidable one.

The economic rights of an individual include personal rights, the right to govern one's actions, and the right to allocate one's property. What rights should an individual have in the socialist economy? In the past, we have never raised such an issue, nor have we regarded it as an issue. According to our previous understanding, the socialist economy refers to the system of public ownership of the means of production and to the planned economy and distribution according to work. Since the means of production is publicly owned and is controlled by the state on behalf of society and since the state makes plans for social production, it looks as though the labor force, as an essential production factor, should also be publicly owned and controlled by the state. It is in fact an economic structure rejecting business operations and lacking individual initiative.

The reform is precisely aimed at changing this structure. The rural and urban reforms are aimed at changing the centralized economic structure into a commodity operating structure, transforming small units of economic activities into the main operating body, and creating a suitable business environment—the market system. There is no doubt that we should operate the socialist commodity economy. However, individuals should have the right to operate it. Thus, to turn the overall economy into a commodity economy so that business operations can run smoothly, we must inevitably define the economic rights of individuals.

Viewed from the establishment and operations of the socialist economy, the question of the economic rights of individuals is no less important than the question of ownership of the means of production. Why does it look

as if it is an entirely new issue? It does not even have a place in political economy. Is it because Marx neglected this issue or because we have deviated from Marxism in our understanding?

Indeed, there is something which Marx did not expound or did not expound clearly. According to Marx's idea, as soon as the society owns the means of production, it can concentrate on using the means of production. This will result in the disappearance of the commodity economy and business operations. Although the difference between the capabilities of different individuals still exists, it only reflects the difference between labor capability and does not necessarily mean that individuals should engage in business operations as the main body. Practice has proved that the public ownership of the means of production cannot make the commodity economy and business operations disappear. Because there are differences in individual production capability and consumption, the division of labor in society will not disappear. Moreover, to raise social labor productivity, it is necessary to develop the division of labor in society and, to suit the indefiniteness in economic process, it is necessary for business operations to exist. Therefore, even if the means of production is publicly owned, it is impossible for society to replace the business operations of small units through direct arrangements of social production. Here, Marx was too simplistic in anticipating the disappearance of business operations.

However, we should not hold that Marx's concept of socialism and the economic rights of an individual was restricted to this. It should not be overlooked that on numerous occasions Marx stressed that only the great development of the commodity economy with the individuals as the main body can create conditions for the institution of the system of public ownership of the means of production. His description of socialism was actually only a tentative idea about the future and it was impossible for him to be completely correct or to entirely conform to reality. However, Marx did not overlook the question of the rights of an individual in the socialist economy either. His description of socialism was actually based on the rights of an individual. On many occasions Marx described socialism as an association of free people. What are free people? They are of course people with full rights. What is an association? In a legal sense, an association is a "combination" [he yi 0678 1942] or an equal, voluntary combination of individuals having independent rights rather than a forced combination. Many of us regard the mode of labor under the original structure as combined labor. This is actually a misunderstanding. When the individuals can neither have the corresponding economic rights, nor freely govern their own actions, nor change their identities at will, how can they achieve combination? In fact, this is only a labor association, which is a far cry from what Marx called an association of free people.

In the "Communist Manifesto," Marx and Engels also made a very famous remark: "In place of the old bourgeois society, with its classes and class antagonisms,

we shall have an association, in which the free development of each is the condition for the free development of all." From this passage it is not difficult to understand that only people with full economic rights will not be thrown into the production process as a passive production factor but develop their own capability and personality through the free development of production. If that is the case, the individuals should be able to govern themselves, their activities, and the means of production. The only question is that this right of the individuals is no longer linked with the capitalist mode of production but with the free development of each.

From the above analysis we can see that, far from being a blank in Marx's socialist theory, the economic rights of an individual constitute an important aspect of his socialist theory. The only defect is that Marx could not accurately point out the relationship between changes in the system of ownership of the means of production on the one hand and the disappearance of the commodity economy and the changes in the economic rights of individuals on the other. This was caused by the lack of practice.

The question is that, in our socialist practice, we have made some deviations in our understanding of Marxism. When we try to understand this question again today, we naturally should not neglect this question. We can see that the previous deviations in our understanding of Marxism were by no means accidental. Moreover, these deviations were detrimental to economic and social development. It should be said that this phenomenon is related to our cultural background and social tradition.

Marxism came into being in Western Europe. Since it was based on Western civilization, the Marxist theory discussed questions to be faced and solved by modern civilization, with Western Europe as the representative, in its development. The achievements attained by civilization in Western Europe served as a base for further advance and so did the question of the economic rights of individuals. In Western Europe, the emancipation of individuals from personal attachment and the establishment of rights serve as a basis for the emergence of modern civilization as a whole. Naturally, Marx also regarded the establishment of the economic rights of individuals as the starting point of the progress of socialism. If we understand socialism from this angle, we

shall never neglect the economic rights of individuals or even abolish them when transforming the system of ownership of the means of production.

Things are different in China. Unlike Western Europe, China was not provided with (at least lacked) the soil for the emergence of Marxism in terms of modern civilization. On the contrary, it had a strong historical tradition of personal attachment. In China's history, the individuals not only attached themselves to the head of the family but also to the state. To safeguard the feudal order, individuals shouldered heavy responsibilities and were greatly restricted. They did not have any rights. Although China had acute class contradictions, these contradictions were attended by personal attachment. It was different from Western Europe in modern times, where individuals were completely independent. Against this background, when accepting Marxism, China was especially liable to accept Marx' theory on class analysis and on the elimination of class differences through changes in property relationships. However, it failed to understand Marx' idea on the level of progress in individuals' development needed to effect this change. This has given the traditional culture an opportunity to give scope to its role. While accepting the system of public ownership for the means of production, people are liable to think that this essential production factor should also be publicly owned. Its use is controlled by the state and the livelihood of the individuals is also completely borne by the state. As a result, individuals hardly have any economic rights and have to rely on the state structure for everything. This is, in fact, an effort to use personal attachment to the state to understand Marx' concept of socialist public ownership. Therefore, the defects in Marx' socialist theory are not so much the theoretical reason for the emergence of the existing structure than the one-sided understanding of Marxism with China's traditional culture and social background. It tells us that, in the course of opening up to the outside world, reforming the economic structure, and building socialism with Chinese characteristics, an important task in our adherence to, and development of, Marxism is to make clear the cultural background for the emergence of Marxist theory and the gap in our cultural background when accepting this theory, as well as our failure to understand Marxism and to develop Marxism in a correct direction. The experience gained over the past several decades shows that this is an important task confronting the theoretical circles.



## NATIONAL AFFAIRS, POLICY

### Establishment of National Tax System Urged 40060002 Shanghai SHIJIE JINGJI DAobao in Chinese 24 Aug 87 p 11

[Article by Zhou Shaohua [0719 1421 5478], National Economic System Reform Commission: "Establishing a National Tax System Is Urgently Necessary for Continued Reform"]

[Text] As reform of the economic system has proceeded, there have been substantial breakthroughs in the old management system. The salient question in current economic activity is how to do away with the situation of "decontrol leading to chaos, and control leading to rigidity" and achieve "control without rigidity and vigor without chaos." This has become the key to continuing to simplify administration, decentralize authority, and advance reform. Doing away with the old involves reform and innovation; establishing a management system adapted to the development of a socialist commodity economy is certainly reform. The fiscal system is the state's basic means of managing and regulating the economy, and tax law is the basic law by which the state controls economic activity and ensures equal social income; these are issues that should be resolved simultaneously with the simplification of administration and the decentralization of authority.

#### Continued Reform of the Fiscal System Is Key to Ordering Economic Relationships

The various conflicts in economic production at present are all intensely reflected in the fiscal system; studying and resolving these issues is urgently necessary for reform.

1. Financial relationships between the central and local governments are out of synch, and the central government's position of economic power is being pummeled; local governments have not received management authority in the area of economic development. In the first place, the relationship between the central and local governments is one of proportional financial sharing; when the local governments reduce taxes and allow enterprises to keep their profits, the central government must take on this share. This is especially true for those provinces and municipalities that are responsible for a large share of central-government revenues; the central government must bear a great burden when they give tax reductions or exemptions. At the same time, all the local governments have revenues that are not included in budgets and are not counted as part of their obligation to share proportionally or turn over taxes to the central government. Therefore, economic development and actual financial income at the central and local levels cannot grow at the same pace. If the central government has a deficit, it is forced to borrow from the local governments. In order to reduce their burden, local governments must . . . p their spending base high rather

than low and lack any mechanism for self-restraint. Second, in order to ensure its revenues, the central government is forced to restrict local measures involving tax reductions or exemptions to stimulate enterprises, making it difficult to achieve local autonomy.

2. Financial relationships among the various levels of local government—provincial, municipal, and county—are also out of synch, with significant conflicts. The current system is one of hierarchical control: the central government controls finances only down to the provincial level, while financial matters below the provincial level are controlled by the provinces, generally without interference by the central government. Financial management over cities and counties by provincial governments is highly discretionary, to the extent that burdens are unevenly distributed, which affects the enthusiasm of economically developed areas for generating revenues. In some areas, production has grown significantly, while revenues have remained basically unchanged.

3. The state-enterprise relationship needs to be put in better order. 1) The taxation system applied by the state to different types of enterprises is highly inconsistent: taxation is different for whole-people, collective, and township enterprises, Sino-foreign joint ventures, wholly foreign-owned enterprises, and enterprises in SEZ's and development zones. Determining the taxation method according to type of ownership in reality limits the development and competitiveness of state-owned enterprises; the burden on them varies greatly. 2) The central government's regulations as to the enterprise cost system are too rigid, which hinders technological progress by enterprises. The state currently has specific regulations regarding withholding and costing of depreciation and funds for new product development and new technology development, and this is entirely necessary. However, these regulations are too stringent and lack the necessary margin for adjustment, with local governments having no authority to make adjustments within those margins; this makes those regulations difficult to implement in practice. Local adaptations also pose a threat to the stringency of the system. 3) In order to meet their financial obligations, the central and local governments have instituted all sorts of contract responsibility systems for enterprises. Contracts offer advantages in ensuring revenues, reforming the cadre and labor systems, and invigorating enterprises; the question in this wave of contracts is how to exploit their positive guiding role. If the tax system is not reformed quickly by lowering the income tax rate, separating the two levels of authority and instituting after-taxes contracts, and taking the opportunity to move towards legislation, then the tax system we have established over the past several years may be destroyed.

One reason for the above problems is that the proportions and scope of the three pillars supporting the central government's economic power under the original system (centralized revenue and expenditure by the financial departments, centralized allocation and distribution of



supplies, and mandatory plans for productive construction) gradually shrank as economic system reform proceeded and the commodity economy developed. The central government's thoroughgoing management system has been dismantled, while new economic pillars have not yet been erected.

Another reason is that decentralization only dealt with the proportions and methods of sharing between the central government and the provinces and municipalities. In the process of generating revenue, however, the relationship between the central and local governments has not been smoothed out; there has been no separation of sources of revenue between the central government and the provinces and municipalities: it is still a matter of the big rice pot and local rice pot. The local governments are content to use methods that do not generate revenue to develop their economies and reduce the funds they turn over to the central government. The central government's budget plans sent down to the local governments lack forceful constraints; the local governments advance all sorts of reasons for not meeting their budgetary obligations, and the central government lacks the means to force them.

A third reason is that the central government has no direct, forceful taxation system. Tax collectors take their orders from the local governments. The Ministry of Finance currently controls only the General Tax Administration, while the provincial, municipal, and autonomous-region tax agencies are controlled by those entities. Some of the tax agencies of these entities use a four-tier vertical system of staffing, office creation, expenditure, and cadre management, which is guided directly by the provincial finance department. In other provinces and regions, these are controlled by the corresponding level of government. Under this system, each tax office is generally concerned first and foremost with local interests, leaving no one to see to revenues for the central government.

A fourth reason is that in theory and practice the concepts of taxes and profits are not clearly differentiated. Taxes are an obligation and responsibility that every citizen and every enterprise bear towards the various levels of government, in order to ensure that state organs function normally, that the state's overall interests are protected, and that all levels of government serve society. Profits are the dividends earned by investors, owners, and workers after taxes are paid. The confusion of profits and taxes for many years has led to excessive taxation of enterprises, leaving them without the capacity for self-transformation and development; it has also blurred the rights and obligations of investors, owners, managers, and workers, which has dampened their enthusiasm and yielded poor economic returns. Enterprises, which are one of the cells of society, have been unable to grow.

In summary, further reform of the fiscal system, establishment of a forceful national tax system, implementation of separated taxes, and the creation of an independent assets management system for all levels of

government are the way to reorganize and reorder the relationships between the central government and the various levels of local government and between the state and enterprises.

#### Establishing a Forceful National Tax System Is an Important Means for the Central Government to Manage the Commodity Economy

Many developed countries, including those with a federal system, rely on a forceful, thorough national tax system to ensure the state's overall interests and the central government's position of economic power. In Japan, tax collectors account for 10 percent of all government functionaries. Some countries even have tax police.

The creation of a strong national tax system is necessarily dependent on the compulsory establishment and implementation of the central government's power. Consideration may be given to establishing a central tax bureau covering the entire nation, which would provide direct, five-tier leadership (staffing, office openings, expenditure, cadre management, and party relations) for the entire country's tax agencies and personnel, all of which would be directly controlled by the central tax bureau. At the same time, the auditing system should also be centralized. In this way, the central government's authority is given a new pillar for providing economic management over the country.

Establishing a national tax system does not imply returning to the old path of centralized revenue and expenditure. Rather, it requires acknowledging the achievements of financial system reform in recent years, and basically accepting that all sides should benefit from the system. Using back-accounting to determine the various rates of taxation is simple and makes it possible to ensure that all sides benefit from reforms, making it acceptable to all.

It should be made clear that local governments now represent only local interests and serve local areas. To guarantee these local interests, municipal tax offices should be allowed to be established at the municipal level of government. Provincial taxes would be collected by the central tax bureau; city and county taxes could be collected by those entities themselves in order to provide local public services. In future, the projects carried out at each level of government will depend on revenues, with increased revenue coming from economic development. If local governments spend more than they take in, the problem should not be solved by exempting them from payment of taxes to the central government but by the central government allocating subsidies to solve their difficulties.

The principal form of taxes in future should be shared taxes, closely linking the interests of the central government, the provinces, and the municipalities, with taxes collected proportionally by the tax bureaus of each

entity. The country's main tax revenues would be composed of two parts: 1) Income tax, with the maximum income tax rate for enterprises not to exceed 35 to 40 percent. All enterprises and legal entities, including whole-people, collective, township, and individual enterprises, and the three forms of enterprises with foreign capital would all be treated equally, paying a low rate of national tax. Provincial taxes would be collected by the national tax bureau and returned to the provincial coffers; municipal taxes would be collected by the municipal tax bureaus themselves and go into the city treasuries. This would enable all enterprises to compete equally. 2) Three circulating taxes (industrial-commercial, operating, value-added), all of which would be back-accounted at the current proportions of financial sharing among the central government, provinces, and municipalities, after subtracting the income tax, to determine individual tax rates.

### **Establishing a National Tax System and Instituting Separated Taxes Would Promote Accelerated Reform**

The various reform measures now being carried out in China, such as proper handling of the relationship between the central and local governments, comprehensive urban reform, intensified enterprise mechanism reform, downward transfer of enterprises, etc., are without exception running into difficulties now because of problems with the fiscal system. Economic and social undertakings are also being cut back due to financial difficulties. Reform of the fiscal system has therefore become the focal point for these conflicts. Instituting a separated tax system will pave the way for resolving these conflicts that have come to the fore during reform.

1. Instituting a separated tax system would make it possible to assure stable revenues for the central government.

Establishing a national tax system would be helpful in establishing and reinforcing the concept of payment of taxes by all citizens. All individuals and enterprises on Chinese territory should fulfill their tax obligation to the state, with everyone being equal before the tax laws. If the income tax rate were lowered somewhat, the growing wealth of the people and the growth of enterprises would provide a vast source of taxes and provide stable revenues for the state.

2. Instituting a separated tax system would achieve autonomy for local governments and protect enterprise interests.

The finances of the central and local governments are still lumped together; when local governments provide tax reductions or exemptions to enterprises, the central government's financial departments have to share the burden. In order to assure its financial revenues, the central government is forced to interfere, violating the autonomy of local governments. After a separated tax

system is instituted, local governments would have no claim on the central government's taxes; local governments would be able to provide reductions or exemptions on local taxes, or increase them within the limits set by the central government.

All enterprises now complain that they bear too heavy a burden. Although the concerned leading departments have repeatedly attempted to change this, they have achieved little. A national tax and auditing controlled directly by the central government should be instituted, with the results of state auditing providing the basis for payment of taxes, and tax bureaus at each level collecting taxes according to law. Should local tax collection and apportionment exceed the provisions of central auditing and the national tax law, the central government could legally put an end to this through financial allocations or other means, so as to ensure that enterprise interests are not infringed upon.

3. Instituting a low income tax rate would pave the way for healthy development of investment dividends and the use of management contracts by enterprises.

Under the original model of whole-people ownership alone, taxes and profits were not really separated. In the traditional concept, the fixed assets of whole-people enterprises belonged to the Ministry of Finance system; when enterprise administrative relationships were transferred, the revenue-expenditure base was readjusted accordingly. That is, when the enterprises were transferred downward to the provinces and municipalities, the obligation of the provinces and municipalities to turn over funds to the central government increased. When the central government's revenues went up, the cities' financial burden could be eased. After instituting a separated tax system and a low income tax rate, it will be possible to separate taxes and profits. Every enterprise, without exception, will have to pay taxes to the state and to the local government. Managers will sign contracts for after-taxes profits with owners, and these profits will be used to pay dividends. The central government receives dividends from those enterprises in which it has invested, and provinces, municipalities and investors should also receive dividends according to the shares they hold. The dividend system will serve as an important guarantee of the interests of the central and local governments.

4. Instituting a separated tax system will help resolve the conflicts and problems involved in the downward transfer of enterprises.

The simple downward transfer of enterprises according to administrative relationships and readjustment of the financial base is currently running into major obstacles. For one thing, the provinces and departments that originally invested in starting up these enterprises are unwilling to part with them; for another, some local governments are not willing to take on these transferred enterprises. If an enterprise is transferred downward, the

local government will have to put out several billion yuan to solve its various difficulties and inherited problems. This means that when the central government transfers down to a local government an enterprise in which it has invested, it must also pay a dowry. Instituting a separated tax system will mean that enterprises need not simply be transferred downward according to administrative relationships, nor will financial shares have to be readjusted. Ownership over the enterprise remains unchanged; ownership and management authority is separated with managers contracting for the enterprise. The enterprise pays taxes to both the national and local tax bureaus and pays dividends to the owners-investors.

In the process of developing a commodity economy, some new management mechanisms will naturally be created as reform progresses, like the financial system reform we are now carrying out, which will naturally become a mechanism for replacing the old planned investment system, shifting economic management from primarily administrative to primarily economic. However, such advanced, scientific management systems as statistics, oversight and auditing, tax law, and the tax system cannot be formed naturally in contracts. Establishment of a national tax system and separated taxes also cannot be created through reform of local government and enterprise reform. This is exclusively the responsibility of the central government. Establishing this new system will require an arduous effort and in-depth work. It will require persistence and stamina, and a certain amount of time. However, this approach is necessary and worthwhile; it is a basic guarantee that China's commodity economy will experience healthy growth.

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## FOREIGN TRADE, INVESTMENT

### Export Drive to U.S. Urged

40060901 Beijing GUOJI MAOYI [INTERTRADE] in Chinese 27 Jul 87 pp 22-23, 32

[Article by Song Zhengqi [1345 2182 6386]: "How China Can Sell More to the Huge U.S. Market"]

[Text] Since China and the U.S. began formal contacts in 1972, both countries have brought out their respective strengths, made up each other's deficiencies, and cooperated in a mutually beneficial way. As a result, bilateral trade has grown rapidly, reaching \$7,336,000,000 in 1986. In a short 15 years, the U.S. has leaped to the position of China's third largest trading partner (after Japan and Hong Kong).

However, we should also see that what has been achieved is a long, long way from what can be achieved. Particularly noteworthy is the huge deficit China has run up against the U.S. (estimated to be \$16.1 billion for the period 1972-1985). As long as this problem remains, it is

bound to affect China's ability to pay for its imports from the U.S. and hence the successful development of Sino-U.S. trade. Accordingly, both countries owe it to themselves to take up the arduous task of further controlling and eliminating the obstacles and difficulties that have given rise to the Chinese trade deficit.

1. Major Reasons for China's trade deficit. The primary reason is that Chinese exports are mostly raw materials and semi-raw materials with low added value. Other reasons are China's rigid trade practices, lack of understanding about the U.S. market, unfamiliarity with U.S. trade legislation and regulations, and price-slashing and competition among different Chinese ports. On the other hand, U.S. protectionist moves, which no doubt have put China in a tight corner when it comes to exporting to the U.S., importing U.S. technology, and using loans, are another important factor that cannot be ignored.

1) Amid mounting protectionism in recent years, the U.S. has also been filing more and more "anti-dumping" complaints against China, greatly curbing Chinese exports to that country.

2) The U.S. has not accorded Chinese exports preferential tariff treatment (under the Generalized System of Preference) to which developing nations are entitled, thereby weakening Chinese competitiveness on the U.S. market.

3) The U.S. has not eased its conditions for technology transfer to China and technology export controls remain as stringent as ever. This has affected the successful development of bilateral trade.

2. Characteristics of the U.S. Market. The U.S. is the world's largest importing and exporting nation. According to statistics, U.S. foreign trade hit \$537 billion in 1984, or 13.9 percent of the world's total, of which \$212 billion were exports, or 10.9 percent of all world exports, and \$325 billion were imports, or 16.6 percent of total world imports. In 1985, U.S. imports rose to \$345 billion, or 17 percent of all world imports. To expand Chinese exports to this huge market, China must try to understand its basic characteristics.

1) Highly demanding in terms of product quality. Because the U.S. is an immense market at which all nations frantically target their export drives, competition is ferocious. Moreover, with their advanced science and technology and high living standards, Americans demand very high quality in the products they buy and have an enormous appetite for upscale merchandise. On the other hand, the U.S. is a multi-level market with a sizable number of low-income families, so products at the lower and middle range of the market sell well too.

2) Emphasis on product packaging. In addition to being attractive, original, and elegant, packaging designs must also have a pleasing, soothing effect. To enhance the appeal of a product, a producer sometimes spends more



on the packaging than on the product itself. Moreover, while there are major differences between product packaging at the upper and lower ends of the market, the trend in both cases is toward individualization and compactness. Packaging must also be sturdy to facilitate shipping and avoid breakage, mildew, or rot.

3) A mercurial market. Americans are active, outgoing, and individualistic. They are trendy and like to be out of the ordinary. There is an eagerness to try any novel product. As far as articles of clothing are concerned, people are more concerned with original designs than with quality. It is absolutely impossible to find two people dressed alike in the street.

4) Emphasis on advertising and promotion. As shoppers, Americans study displays in shop-windows and are receptive to print and broadcast advertising. Thus advertising designs and promotion methods have a good deal to do with whether a product can break into the U.S. market. That many South Korean and Taiwan products have successfully entrenched themselves on the U.S. market is inseparable from the close attention they pay to advertising and promotion.

5) Complex sales and marketing channels. America not only has a gigantic domestic market but is also a key transshipment center. A massive flow of goods from all over the world winds its way through the U.S. and into various Pacific islands and Central and South America. This explains the presence in the U.S. of a huge labyrinthine sales and marketing network featuring distributors, agents, importers, department stores, supermarkets, chain stores, discount stores, retail stores, etc.

3. Stepping up Export Drive to the U.S. It is very difficult to alter the mix of Chinese exports to the U.S. within a short period of time. Therefore China must urge the U.S. government to further open up its market, eliminate certain unreasonable restrictions on Chinese products, and actively encourage Chinese imports. In addition, China must work hard to accomplish the following:

1) Since textiles and apparel account for over 50 percent of Chinese exports to the U.S., it must double its efforts to increase these exports, particularly that portion that has not come under restrictions or control. Meanwhile, China must also exploit its strengths and make a concerted push for processing with materials provided and processing with purchased materials. Furthermore, it should export to the U.S. other labor-intensive products such as hardware for everyday use, handicrafts, "do-it-yourself" tools, gardening tools, fitness and workout equipment, sporting goods, health foods, petrochemical products, basic processed goods, and assorted products.

2) Increase labor export to the U.S. Not only does China have ample labor resources, but it also boasts a fair amount of technical know-how, particularly in capital construction and the building of railroads, highways, and

dams, where China is definitely at a advantage. Besides, China has a good reputation and Chinese workers have the traditional virtue of diligence and being able to bear hardships. Provided we do more to investigate the American labor market and assiduously cultivate connections with the parties concerned in the U.S., labor export to that country appears promising.

3) Improve product quality. To make Chinese goods more competitive in the U.S. market, China must strengthen management and establish production bases and specialized factories. Furthermore, it must ensure that all policies aimed at encouraging exports are improved and carried out to steadily increase the enthusiasm in every locality and every quarter for boosting exports and earning more foreign exchange. This should be combined with efforts to improve economic accounting and economic returns so that we end up with renminbi as well as foreign exchange.

The U.S. is the world's premier trading nation and a leader in science and technology. Thus China must improve its investment climate continuously and offer more preferences. Apart from importing U.S. technology, it must attract U.S. investments with an eye toward changing its export mix and gradually increasing exports with a high added value such as machinery, equipment, domestic electric appliances, and upscale apparel.

4) Increase exports to the U.S. through the marketing network. Since the U.S. is a strange land to the Chinese, sometimes they do not know where to make the first move when they want to do business with Americans. So China must seek help from American consulting firms (for a fee, of course). In addition, China can make friends with U.S. businesses by holding commodity exhibitions and trade talks in the U.S., inviting U.S. businessmen to visit China, and promoting Chinese goods in the U.S., and sell its products through them. A major factor for Japanese success in America is that the Japanese trust local consulting firms and make full use of America's sales and marketing network.

5) Increase exports through certified agents. Letters of credit, notes, and bills of exchange are seldom used in domestic trade in the U.S. Instead, most transactions are settled on credit. To increase the competitiveness of Chinese products on the U.S. market, cut costs, prevent bad debt losses, and obtain credit control and credit guarantees, China may try to shepherd its products steadily into the U.S. market through certified agents.

6) Intensify market research. China currently has few foreign trade personnel permanently stationed in the U.S. and even fewer trade researchers. To expand exports, it must send out more trade investigators and researchers to study and understand the needs of the American market, product cycle changes, commodity circulation trends, the state of its competitors as well as trade methods, export channels, trade practices, new products, new packaging, and new technology, among



other things. Attention should also be paid to Americans' habits, likes, and dislikes as well as consumer reactions to Chinese products. There must be quick feedback to the nation to provide a reliable basis for the formulation of trade policies toward the U.S.

7) Step up studies on U.S. "anti-dumping" legislation. Because of sluggish economic growth, a worsening foreign trade position, a rising trade deficit, and a need to protect its national interests, the U.S. government in recent years has taken the protectionist tack of making "anti-dumping" complaints against certain products. To continue to increase exports to the U.S. avoid American complaints as much as possible, and minimize China's political and economic losses, China must do a good job in industry-, technology-, and agriculture-trade cooperation, improve coordinated management and present a united front in its dealings with foreign business. In addition, it must take pains to study U.S. "anti-dumping" laws and regulations, legal precedents, and enforcement procedures in order to determine what countermeasures to take.

8) Strengthen the training of foreign trade cadres. China must improve the policy understanding and professional caliber of on-the-job cadres either by making full use of existing universities, colleges, polytechnics, and vocational universities or by letting the units conduct their own training. This will put China in an impregnable position as far as trading with the U.S. is concerned.

In addition, China must make sure it has an enthusiastic export attitude and go out to look for business. It must familiarize itself with the pricing system of the international commodity market and handle market prices flexibly. Even as it improves product quality, it must energetically develop new products. Even as it goes after big orders, it must also accept small orders. Packaging must be continuously improved to give Chinese products a better image, contracts must be strictly honored, merchandise must be delivered on time, and good after-sale services must be offered.

In short, it is not only possible but entirely feasible to expand exports to the U.S., but that will be no easy job. We will need to exploit all advantages, tap all aspects of our potential, remove the various obstacles, undergo hardships, and exert much effort to realize this goal.

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## AGRICULTURE

### New Technological Revolution, Modernization of Agriculture

40060863 Beijing ZHONGGUO NONGYE KEXUE  
[SCIENTIA AGRICULTURA SINICA] in Chinese  
No 3, 1987 pp 1-8

[Article by Lu Liangshu [4151 5328 1859], president of the Chinese Academy of Agricultural Sciences, Beijing: "The New Technological Revolution and Modernization of Agriculture"]

[Text] Summary: China's agricultural sciences have grown considerably in both scope and depth since the founding of the PRC, with 1,040 positive results attained in tackling key scientific and technical (S&T) problems in agriculture, animal husbandry, and fishery in the Sixth 5-Year Plan alone. Of these, the technology of 45 of the projects reached advanced international standards, while 95 filled in domestic technological gaps. These advances have played an enormous role in production, produced excellent economic and social results, and created the key technical conditions and material base for agricultural growth in the new period. Faced with the challenge of the new technological revolution, S&T will certainly play an increasingly stronger role in contemporary agriculture.

Agriculture is a major field that develops and applies such things as biological technology. In the new wave of S&T, China's agricultural S&T revolution will have to both be rooted in the present and develop its advantages, and also show great foresight and catch up with advanced world standards. Even more importantly, it will have to clarify its growth strategy, provide scientific reserves for the next decade of growth, promote rural economic prosperity, and speed up the pace of China's agricultural modernization.

### I. The Relationship Between the New Technological Revolution and Modernization of Agriculture

China's study of agricultural sciences has grown considerably in both scope and depth since the founding of the PRC. In the Sixth 5-Year Plan alone, 1,040 positive research achievements were made in tackling key S&T problems in agriculture, animal husbandry, and fishery. Of these, 45 reached advanced international standards, while 95 filled in domestic gaps. They have played an enormous role in production and produced excellent economic and social results.

In order to ensure that China's agriculture maintains a steady, large-scale, and overall growth and is gradually modernized, everyone had been paying a lot of attention to the issue of how the new technological revolution can promote agricultural growth. In the past few years, everyone in international S&T circles has been discussing this matter of the new technological revolution. Although their wording, substance, and goals differ, the consensus of their opinion is that the rapid growth of new technology is producing "a tremendous and stirring transformation" of society. Knowledge (or technology) has become "the key factor of contemporary productive forces, competitiveness, and economic results." The new technological revolution will undoubtedly spur the social productive forces to grow by leaps and bounds and, moreover, create the key technical and material bases to modernize agriculture.

Modernization of agriculture is a relative concept that is generally used to show that agricultural growth in certain countries has reached contemporary advanced world standards. Things are forever growing and changing. In

other words, contemporary advanced world standards for agricultural modernization are still changing and progressing. Thus, they are determined by neither time nor space. Agricultural modernization follows the constant advancements in S&T and industrialization. Specifically, modern agriculture is based on contemporary natural, economic, and social sciences, and uses contemporary S&T and industrial equipment. Its work is performed by machines instead of people and animals. It uses modern S&T instead of traditional techniques that pale by comparison, contemporary economic management methods to organize production, and a specialized, commercialized, and socialized style of production instead of a "small but complete" or "single-unit" self-sufficient or semi-self-sufficient lifestyle. Based on fully understanding and mastering natural and economic laws, modern agriculture relies on recent S&T advances, rationally uses natural, labor, and material resources, fully develops its advantages in all areas, constantly taps potentials to increase production, greatly raises land and labor productivity and the percentage of agricultural products that are transformed into commodities, and achieves high quality and production, low consumption, and a good ecological cycle. It reduces the distinctions between city and country and industry and agriculture, and remarkably improves farmers' material and educational levels. Thus, modern agriculture can be summed up as having a scientific nature, commercial characteristics, an intensive orientation, and knowledge as its key.

China is a developing socialist country with more than 1 billion people and 800 million farmers. Our agricultural technology will have to be transformed according to our actual conditions, and we will have to take a path to agricultural modernization that is in line with our national conditions. This should consist mainly of the following steps: Our traditional experience of intensive cultivation should be combined with contemporary S&T, and intensive farming should be practiced; biological and engineering measures should be combined, and contemporary S&T achievements should be used comprehensively; technical, economic, and ecological results should be integrated, and a good agricultural ecosystem cycle should be established; the technological transformation of agriculture should be subordinate to overall rural growth needs, and a multilevel agricultural technology structure should be established; advanced foreign technology should be imported selectively, the pace of transforming S&T into productive forces should be accelerated, and China's agriculture should become specialized, commercialized, and modernized as quickly as possible.

China's realization of "agricultural modernization" is clearly stipulated and has specific contents. These are principally that it will persist in building a modern socialist agriculture with distinct Chinese characteristics, and surpass, catch up to, or approach the economic and technical levels of advanced contemporary countries. Since the agricultural growth levels of all countries

throughout the world are changing, people's understanding of their growth conditions are also changing. Ever since agriculture in developed countries was industrialized, people have generally become accustomed to looking at agriculture from the viewpoint of industry. In modernizing their agriculture, these countries concentrated their efforts on raising technical and economic results alone, without paying attention to improving ecological and social results. Some developed countries long advocated relying on mechanization alone to raise labor productivity, and then on chemicals, irrigation, improved varieties, and modern management techniques to raise yield per unit area. However, they certainly ignored the sudden drops in material and energy use efficiency that occurred from time to time, and also the accompanying deterioration of their agricultural ecosystems. Thus, prior to the 1950's, people had the impression that agricultural modernization meant mechanization. In the 1960's, they thought that it meant mechanization, chemicals, irrigation, and improved varieties. By the 1970's, they thought that it meant modernization of production techniques and management organization, or mechanization, chemicals, irrigation, improved varieties, specialization, and socialization. The constant intensification of the energy and ecological crises generally exposed the serious disadvantages of the developed countries' modern agriculture (some people refer to it as "petro-agriculture"), and such technologies as biological, electronic, nuclear, and remote sensing appeared one after another and were applied extensively to the field of agriculture. Thus, by the 1980's, the new understanding of agricultural modernization in developed countries meant further raising such issues as "ecological agriculture," "knowledge-intensive agriculture," the "biotechnological revolution," and the "new agricultural revolution."

Since conditions differ from country to country throughout the world, views on ways to modernize agriculture also differ. But they all agree on the three characteristics of intensive farming, highly commercialized and socialized production, and the establishment of an industrialized production system. In economically developed areas, such as Western Europe, North America, Australia, and Japan, farm work technology is highly mechanized and automated, and specialized and socialized production is constantly growing. Having mechanized, electrified, and extensively used chemical fertilizers and insecticides in their agricultural production, the Soviet Union has also pointed out the need for farm work to be thoroughly industrialized. Many developing countries in Asia, Africa, and Latin America have also restructured their economies, giving priority to agriculture in developing their national economies. Some developing countries, such as Mexico, India, Indonesia, the Philippines, Brazil, Togo, Cameroon, and Nigeria, have launched a "green revolution" focused on popularizing improved varieties, actively popularized new agricultural techniques, and promoted agricultural growth. Influenced by scientific progress and the new technological revolution,

several new trends have now appeared in world agricultural growth: 1) Farm tools and machinery, and agricultural product storage and processing equipment are becoming highly mechanized, automated, and computerized; 2) the observational functions of computer and man-made satellite remote sensing technologies are being applied to agriculture, greatly improving man's ability to understand and control nature; 3) the research achievements of biological, chemical, and genetic engineering are being used to breed fine new varieties that are nutritious and have high and stable yields; 4) agricultural production processes and management and administration are becoming more scientific, systematic, and rational; 5) agricultural research, education, and production are becoming closely linked, the division of labor is becoming more specific, and the popularization of new technology is greatly improving; 6) macro-research (software science) is being increasingly stressed. However, along with the constant rise in world population, the issue of poor nutrition still exists in developing countries, and such problems as the gradual exhaustion of fossil fuels, the intensification of urban and rural air pollution, and the constant deterioration of the ecology and the environment are becoming increasingly serious. Based on summarizing our experiences and lessons, these problems will all have to be solved by exploring new ways to modernize agricultural growth. Moreover, there is also a pressing need for agronomists to gradually work new wonders in exploring new and high technologies.

## II. The Growth Trends and Effect on Agriculture of the New Technological Revolution

Modern agriculture is gradually moving from the field to the "factory," from being opposed to industry to becoming an organic whole with it, from the rural work force flowing into the cities to it returning to the countryside, from resource-intensive to knowledge-intensive, from overlooking regeneration of resources to relying on resources that can be regenerated, from using individual techniques to coordinating and comprehensively using many techniques and sectors, from imitating industry to imitating biology, and from single-product agriculture to multilevel agriculture, etc. The practice and history of S&T growth has helped us understand that after developing to a certain stage, all technologies may advance from quantitative changes to qualitative leaps, change their original images to varying degrees and, moreover, have a profound influence on mankind, society, and the economy. The rise of biological technology is an example of this. Although it has only been around for a short period of a decade or so, it has demonstrated the following great potentials: 1) Using biological technology to breed new animal and plant varieties may bring about a new "agricultural revolution," greatly raising grain production and expanding food sources. For instance, once certain saline-resistant biological genes are transferred to crops, saline-alkali land will then be able to be used on a large scale and, once certain wild plant genes, such as disaster-, insect-, cold-, and drought-resistant

ones, are transferred to cultivated crops, man will be able to conquer many "deserts." 2) Biological technology can be used to regenerate energy resources. For instance, agricultural sideline product residues can be changed through microbe fermentation into such things as ethyl alcohol and methane. This will certainly become a major way to solve the energy crisis and avoid environmental pollution. For instance, methane bacteria can be used to ferment liquid waste and residues from sugar refineries to produce methane fuel, fermentation residues from fermentation ponds can be used to fertilize soil and, after microbiological treatment, waste water can be used to irrigate farmland. 3) Not only can biological technology be used to prevent and eliminate plant diseases and insects, but it can also be used to make genetic engineered vaccines to prevent and control epidemic diseases in man and livestock. 4) Using microbe fermentation to produce unicellular protein (livestock feed protein) will be a major way to help solve present world feed and grain shortages. Thus, some people think that the 21st century will be an age of biotechnological revolution, or a century of biotechnological dominance.

In the past few years, all countries have paid a lot of attention to investing in and studying new technologies, and biological technology in particular. Moreover, encouraging progress has been made and wonders have been worked in many fields.

In the areas of genetic and cellular plant engineering, scientists have introduced legume or synthetic protein genes to potatoes, raising their protein and essential amino acid content. Such things as insect- and herbicide-resistant genes have been transferred to such crops as tobacco. Breakthroughs have also been made in China's plant biology technology. The Chinese Academy of Sciences' Genetics Institute and Shanghai Plant Physiology Institute have cultured and regenerated plants from rice protoplasts. The Chinese Academy of Agricultural Sciences' Biotechnology Studies Center has cultured plants from cucumber cotyledon protoplasm. The Chinese Academy of Sciences' Shanghai Biochemistry Institute has cooperated with the Jiangsu Academy of Agricultural Sciences to use DNA injection transmission technology to breed new verticillium wilt-resistant cotton varieties.

In the area of livestock veterinary medicine, Australian scientists have used DNA microinjection technology to introduce growth hormone genes from external sources to hog and sheep embryos, creating optimistic prospects for raising livestock and poultry output and quality. British scientists have used embryonic implantation technology on goats and sheep, successfully breeding a "rare hybrid animal" with a tail like a goat and a body and legs like a sheep. The United States IG Corp. recently announced that it had demonstrated how to clone growth hormone genes in bacteria, i.e., horse follicle-stimulating and luteinizing hormone and hog follicle-stimulating hormone genes, and used a lot of hormone preparations from fermentation to regulate the ovulation period and raise the fertilization rate of mares.



thus, notably raising their breeding rate. Similarly, using synthetic hormone preparations can synchronize breeding and raise the farrowing rate of hogs. China's Nei Monggol Academy of Animal Husbandry Sciences has achieved definite economic results in using the lutein hormone to spur sterile cows to produce milk. The Chinese Academy of Agricultural Sciences' Silkworm Research Institute recently successfully fed hormones to silkworm larvae, achieving artificial control of silkworm cocoon-formation periods and female silkworm sterility. Not only does this pioneering technology not decrease the length of silkworm cocoon silk, but it can also produce the thinness needed for high-precision textiles. Thus, it has opened up new ways to raise silkworm cocoon output and earn more foreign exchange through exporting silk.

The most widely used biotechnology is tissue culture. China is leading the world in this area and was the first to successfully anther culture more than 40 plants. Fifteen new anther cultured rice varieties alone, such as "Zhonghua No 8," "Zhonghua No 9," "Huahanzao," and "Xinxu," have been popularized on more than 4 million mu.

Biological prevention and control is a new method and technology that uses biology or biological metabolites to control harmful animal and plant communities. People have used it to develop "environmental pollution-free agriculture" technology. In the past few years, all countries throughout the world have improved their studies of the use of natural enemies, and their factory production has grown quickly. Relevant statistical data shows that 50 companies in the United States and Canada commercially produce dozens of kinds of natural enemies. The Soviet Union is the major country that breeds large amounts of natural enemies, and it has now bred and released 15 kinds of them. It has 55 trichogramma factories alone. Mexico has 20 trichogramma propagation stations. China was the first country in the world to succeed in external breeding of trichogramma from artificial host eggs, and has now experimentally popularized in on more than 1,000 mu. The Chinese Academy of Agricultural Sciences' Atomic Energy Utilization Institute artificially raised sterile male cornborers and released the adults in the fields to mate with natural females, making the females barren and, thus, achieving the goal of controlling insects with insects. In the area of using biological pesticides, China has set up more than 20 microbiological pesticide plants that produce more than 10 varieties and have an overall capacity of more than 35,000 tons. For instance, "Antibiotic 120" has been popularized and used on melons and, in addition to being used in China, "Jingfeng toxin" has also been exported to such countries as Thailand and Singapore. Moreover, China has also stressed studies of the biological prevention and control of weeds and crop plant diseases, and has improved its technical development of microbiology, bacteria, and algae.

In the past few years, electronic computers, and microcomputers in particular, have been being used more

widely in world agriculture, and even greater developments are expected. The countries that developed the use of computers in agricultural work relatively early, such as the United States, Japan, England, Canada, and Holland, are experiencing an upsurge in the use of microcomputers in agriculture. For instance, in dealing with such things as crop cultivation, livestock raising, and grain harvesting, Japan has used computers widely to control the environment and raise productivity. Developed countries have used microcomputer and remote sensing technologies in surveying, predicting, and analyzing agricultural resources, as well as in such areas as agricultural S&T and economic information systems, and agricultural production management and administration. It can be predicted that the rapid popularization of both of these new technologies will have far-reaching effects in developing the national economy and modernizing agriculture. These effects can be estimated as follows: 1) They will spur agricultural research to develop in depth. For instance, the Chinese Academy of Agricultural Sciences' Agricultural Economics Institute has used computers to study a "structural model for China's cultivation trends," and used systems engineering and mathematical and economic models to carry out qualitative, quantitative, and directional exploitations. The Shanghai Academy of Agricultural Sciences' Crop Institute has successfully developed a "genetic resource applied software system for rice" and, through establishing a data base for rice variety resources, has conducted storage, classification, screening, and retrieval studies. 2) They will directly serve agricultural research, production, and education, and become a major way of making policy decisions. They will use many elements or compositions to choose the best plans for feed prescriptions. They will use the component factors of meteorological data and crop yields gathered over the years to make output predictions for certain crops, etc. 3) They will become major tools in handling agricultural S&T, economic, and market information. Not only will this save a lot of manpower time, but it will also help in quickly and accurately mastering their respective growth trends. It is precisely for these reasons that all countries in the world have regarded computer development as a major step, formulated laws for their growth and use, trained qualified personnel, concentrated their financial resources, and developed competition.

Practice has proved that the new technological revolution in agriculture is the most dynamic factor among the agricultural productive forces. Not only has its rapid growth opened up new agricultural science fields and prospects, but it has also spurred the rise of new industries, changed the style of agricultural production and the form of organization and management, and pushed agriculture to develop in scope and depth.

### III. The Tasks Facing the New Technological Revolution, and Ways To Deal With Them

Agriculture is a major field that has developed and used biological technology, and developing agricultural biology technology has become a modern scientific trend.



According to predictions by specialists, the world's output value of agricultural biology technology products alone will reach \$5.7 billion before 1990, and agricultural biology technology profits may be 10 times higher than those of medical science by 1996. Using plant cell engineering to carry out industrialized production of biological compositions will result in the redistribution of farmland and factory tasks. The United States Agricultural Biology Research Council recently pointed out that "not understanding and using the power of these measures as soon as possible will delay United States agricultural progress." The "Eureka Plan" that was jointly formulated by 18 Western European countries regards synthetic seeds and biomedical engineering as two major focal points in the growth of Europe's biological technology. Factory production of large amounts of synthetic seeds and seedlings through genetic and cellular plant engineering will enable Europe to become the first major seller in the world's seed market, with economic results of \$10 to \$12 billion. Five of the six biological engineering projects that were proposed in the high-tech plan formulated by the Soviet Union and Eastern European countries, the "Eastern Eureka Plan," are in the field of agriculture: using genetic and cellular engineering methods to obtain high-yield crops and fine livestock breeds, microbiological pesticides, bacterial fertilizers, plant growth regulators, and biologically converted waste material. Under these conditions, agricultural research institutes and private companies in such countries as the United States, England, and Japan and certain international agricultural research centers have successively established special research institutes or carried out structural reorganization, allocated huge sums of money or adopted such policies as tax exemption and tax credit, encouraged enterprises and individuals to invest, and increased their biological and other new technology research. Changes in the orientation of these research tasks has generally become the future growth trend. Following and adapting to this trend is a new and important task that is facing China's agricultural research and decisionmaking.

Although China's agricultural biology technology started rather late, it has advanced quickly and achieved a leading position in certain areas. For instance, although we started anther or tissue culture a little later than other countries, we are ahead of the rest of the world in applying it. Through nucleus transplantation and gynogenesis, we hold a leading international position in breeding hybrid nucleoplasm and wholly female unisexual fish. Our studies of livestock embryo transfer technology have approached international standards and produced an effective way to speed up breeding of good strains. Six monoclonal antibodies used to diagnose livestock and plant epidemic diseases have been evaluated, and this will enable us to fully diagnose, trial-produce, and conduct intermediate testing of drug capsules in the Seventh 5-Year Plan. China's study and use in agriculture of cellular engineering is generally well-founded and superior. Our molecular biology and genetic engineering studies of animals and plants are still

quite undeveloped, and our fermentation and enzyme engineering studies still occupy a minor position in our overall agricultural biology technology. Quickly changing the backward condition of China's agricultural biology technology in these fields has become an urgent matter that demands immediate attention.

Electronic and biological technologies, standing side by side with new materials and energy sources, have been called the four major S&T pillars of China's future national economy and people's livelihood. In the past few years, such new technologies as computers, nuclear technology and satellite remote sensing have all begun to be widely used in the field of agriculture, and some have become popular research tasks. Since the agricultural production and research environment is very complex and affected by various factors, such as investment, resources, climate, time, and region, experimental research is often plagued by high costs and long cycles, and is unable to even basically achieve uniform quality and quantity in some areas. If such things as computers are used to assist or simulate, these obstacles can be overcome, rational information feedback can be obtained, and agricultural research and production management can acquire a stronger scientific foundation. For instance, in building a modern livestock farm, if computers are used to input data on such things as raising methods, herd structure, feed prescriptions, and rate of increase, useful information on such things as output and cash flow can be obtained, managers can choose the best plans, and the best economic results can be achieved. Furthermore, if the northern dry land agricultural research that is being conducted by the Chinese Academy of Agricultural Sciences is coordinated with new remote sensing technology measures, surveys and investigations of such things as the region's ground water resources, soil trace element content, farm plant diseases and insect pests, and output can be carried out in the laboratory. When this data acquired from investigation is later put into computers for analysis, qualitative and quantitative analyses can be made of the major factors that cause the region's low yields. It is precisely for this reason that all scientists profoundly believe that simulated research conducted with these new technologies will certainly speed up the course of China's agricultural modernization.

China's study of new agricultural technology began late. Although it now has a definite foundation, it is still quite deficient in comparison to advanced world standards. The inadequacy of its technical reserves and stamina is shown mainly by the fact that its research forces are few and decentralized. A rough estimate shows that there are little more than 1,000 scientists and technicians throughout China who are engaged in agricultural biology technology and applied agricultural computer research. This is very unsuited to China's status as a major agricultural country and our urgent need to develop new technology. In addition, our overall plans are still deficient, our basic research is weak, our funds and equipment are inadequate, our instrument or microcomputer models and

programs are too diverse, our low standards are repeated, our efficiency is very poor, and our research methods are quite backward. However, it should be seen that our agriculture has unique advantages and favorable conditions to develop new agricultural technology, and biological technology in particular. In addition to specific technical measures, our future development of biological technology will depend to a great degree on mastering our abundance of germ plasm resources. Our agricultural units have many germ plasm resources that will be very valuable in developing high and biological technologies, such as various major agricultural animal, plant, and microbiological varieties and fine genetic materials, including rich cash crops, such as tropical fruits and spices, various valuable and outstanding livestock and aquatic product resources, various common nitrogen-fixing and joint symbiotic nitrogen-fixing bacteria, such as fast-growing soybean nodule bacteria, various fine edible mushrooms, and many outstanding silkworm genetic materials. We have begun to systematically collect, collate, and investigate these resources. We have also studied and analyzed the genetic backgrounds, agricultural properties, and physiological and biochemical characteristics of some of these materials, providing abundant data to launch research on molecular and cellular levels. From a long-range growth perspective, it will be necessary from now on to stress investing in intelligence and agricultural research, and improving basic and applied research on new technologies, such as agricultural biology. The new revolution in agricultural technology should take high rewards and results as its guiding principles, do a good job of forming links with basic science and production application, insist on close coordination with conventional technology, do a good job of matching itself in depth with its present foundation, improve lateral and weak links, and focus its forces on solving difficult problems. In the Seventh 5-Year Plan, the new revolution in agricultural technology should focus on the following eight areas:

#### 1. Genetic Engineering

China should fully develop its existing foundation and special advantages to practice genetic plant engineering. For instance, we should study male sterility and various resistant genes, carrier, receptor, and genetic transmission methods, biological nitrogen-fixing genetic engineering, and genetic engineering of vaccines and various products for veterinary medical use. We should actively spur these fields to reach advanced international standards, quickly improve, and develop in depth.

#### 2. Protoplast Culture and Cell Fusion

China has made new advances in the area of crop protoplast culture in the past few years. We have regenerated more than 20 plants, such as rice, vegetables, and citrus fruits, and our edible mushroom protoplast regeneration and cell fusion technologies have begun to be applied. In the Seventh 5-Year Plan, our plant protoplast

regeneration studies will have to make new breakthroughs in grain and legume crops mainly, and our cell fusion technology studies will have to pay special attention to transferring a few genes of recently created species and creating plasmagene hybrids, and establish an intermediate hybrid cell selection system.

#### 3. Tissue Culture and Cellular Engineering Breeding

China should continue to improve its studies of monohybrid breeding, maintaining our leading position in this area in the following ways: 1) It will be necessary to speed up the pace of breeding varieties, and biotechnicians will have to cooperate with breeders in constant selective breeding of new high-yield, high-quality, and multiresistant varieties suited to all areas. 2) It will be necessary to improve our culture technology and raise the recovery, differentiation, and seedling formation rates of anther culture. 3) It will be necessary to improve our basic research in selecting and using somatic cell and gametophyte variation and heredity. Many developed countries have formed international commodity markets for rapid plant propagation and detoxification technologies. China will have to improve as quickly as possible its building of intermediate testing and production bases and, in the Seventh 5-Year Plan, build several test-tube seedling production lines.

#### 4. Hybridization Technology and Monoclonal Antibodies

Since the Sixth 5-Year Plan, agriculture has successfully developed many distinctive major plant and animal pathogen monoclonal antibodies, such as the potato Y virus, the horse infectious anemia virus, the brucellosis bacillus, the chicken Newcastle disease virus, and the tobacco mosaic virus. Some of these have been test-produced and achieved definite social and economic results. Technical coordination of monoclonal antibodies should be carried out in the future, and development of an applicable monoclonal antibody system must be particularly emphasized and used in production as soon as possible. Moreover, we must also research nonserum culture and large-scale culture conditions, conduct exploratory studies of such things as T cell hybridization, interspecific hybridization, and monoclonal antibody vaccines, and build the necessary technical reserves for the Eighth 5-Year Plan or the next decade.

#### 5. Livestock Embryonic Engineering

In the past few years, China has successfully carried out embryonic implantation on such animals as cattle, sheep, hogs, and rabbits and embryonic freezing on such animals as cattle, sheep, and rabbits. Of these, our success rate of cattle embryonic implantation testing has reached 50 percent. We have solved the problems of superovulation and embryonic implantation for barren and aged female Debye-Sears Angora rabbits, and they are now being popularized and used in production. The recent embryogenesis of healthy young rabbits through

external fertilization was the first time that China has successfully bred mammal progeny in test tubes. Separate semiembryonic implantation into receptor cattle and Hu sheep has produced calves and lambs. In the Seventh 5-Year Plan, it will be necessary to improve our biological research in such areas as external fertilization, sex control, and embryonic freezing of livestock, genetic transmission of cattle and fish zygotes, and cell nucleus transplanting, and contribute to helping China's livestock and breeding industries grow quickly.

#### 6. Enzyme and Fermentation Engineering

China's research is now still quite undeveloped in these two areas. In the Seventh 5-Year Plan, our research emphasis should be placed on microbiological pesticide, unicellular protein, biological prevention and control, agricultural physiology active matter, and agricultural sideline product fermentation transformation technologies. We should also develop studies of enzyme-fixing technology and improve our coordination of fermentation, genetic, and cellular engineering.

#### 7. Nuclear Technology

Nuclear technology is now being principally used in agriculture in the two major areas of isotope tracing technology and nuclear radiation. Isotope tracing technology has been widely used abroad in all life sciences. In China, 90 percent of it is used in agriculture, and principally to study various areas, such as soil improvement, rational fertilizer application, animal and plant nutrition, reproduction physiology, plant protection, veterinary diagnosis, pesticide residues, environmental protection, and biological technology. Nuclear radiation is principally used in agriculture for such things as variety improvement, insect control, and agricultural product storage and preservation. More than 50 plants and 518 new varieties have now been radioactively-bred in various countries throughout the world (approximately one-third of these were bred in China). In the Seventh 5-Year Plan, based on the widespread use of isotope and radiation technologies and the characteristics of outstanding economic results, China will have to emphasize the three areas of expanding the use of nuclear technology in the field of agriculture, improving the coordination of nuclear technology with agricultural bioengineering, and increasing the development and production of isotopes.

#### 8. Computers

In the past few years, computers have moved from the stage of being regarded principally as calculation tools to a new age of being regarded principally as data-storage and information processing machines to serve agricultural S&T. Such things as information management systems for all specializations, management systems for monitoring production and S&T, decisionmaking systems for analyzing plans and programs, systems for

developing agricultural software, and agricultural specialist systems have been gradually developed. In the Seventh 5-Year Plan, development of the following areas should be stressed: 1) We should change our traditional agricultural information management mechanisms, such as agricultural production and economic information management, environmental and resource information management, and S&T intelligence and information management. 2) Our traditional agricultural research methods and measures should be reformed. We should emphasize software development in such areas as developing crop, livestock, and poultry breeding, agricultural resource survey and analysis, plant disease and insect pest predictions, and medium- and long-range agricultural weather forecasts. In particular, we must improve our use of computers to develop studies of various kinds of agricultural simulations and models. 3) Control and management automation of agricultural production processes should be realized, and greenhouse environmental control should be further developed. Research in such areas as feed prescription selection and irrigation and fertilizer application management should be developed.

In the tide of the new technological revolution, China's new agricultural technology studies must both be rooted in the present and also show great foresight. They will have to provide scientific reserves for the next decade and serve modernization of agriculture. The strategic steps to accomplish this are as follows:

1. Relevant leading departments have recently begun to formulate plans to research and develop agricultural biology and other new technologies in the Seventh 5-Year Plan. When formulating long-range development goals and short-term projects to tackle key problems, it will be necessary to combine research and development, long-range and short-term plans, and new and conventional technologies. Moreover, plans and corresponding measures will have to be applied by stages and in groups.

2. It will be necessary to establish and reorganize essential research and development institutes as follows: 1) It will be necessary to suitably centralize decentralized forces and strengthen weak departments in order to focus our strengths on solving difficult problems; 2) it will be necessary to build a number of key laboratories as quickly as possible in order to form new technology research centers that have distinct characteristics, personnel, and complete apparatus. Moreover, it will be necessary to gradually develop our existing foundation into an open and comprehensive experimental base that is geared to the needs of China and the world.

3. It will be necessary to raise our investment in intelligence and vigorously train qualified personnel in all new and high-tech fields. The key to developing new agricultural technology is training all kinds of talented personnel in a planned way, and high-level young and middle-aged scientists and technicians in particular. At present, emergency measures should be taken to purposefully select and send scientists and technicians abroad to



pursue advanced studies, invite well-known foreign experts to China to lecture or conduct bilateral or multilateral cooperative research, organize multidisciplinary, coordinated operations, and choose graduate students who have good ideas, foundations, and practical experience to replenish new and high-tech research fields.

4. It will be necessary to increase research funds for new technology and concentrate our financial resources on ensuring priorities. Research in new agricultural technology is very rewarding but also very difficult and, without definite fund investment, is like trying to cook a meal without rice. Thus, it must be given the necessary financial and material support. We must now first formulate corresponding preferential policy and fund priority support methods to give key support to certain laboratories that are equipped to study new technology. We must encourage research institutes that stress development and application to set up companies which can be linked to and cooperatively run by trades or groups. We must be willing to invest in specific issues, spur overall development with key breakthroughs, and not engage in equalitarianism or giving of "consolation prizes."

5. It will be necessary to conscientiously evaluate and actively popularize existing new agricultural technology research achievements, do a good job of technological coordination and intermediate testing, and transform them into productive forces as quickly as possible.

6. It will be necessary to actively develop academic exchanges of new agricultural technology both in China and abroad, develop and improve our efficiency in handling S&T information, and raise our instrument utilization rate and research work efficiency. Moreover, it will be necessary to improve our style of study and encourage a "selfless, pioneering, realistic, and cooperative" scientific attitude.

Since developing such high-tech industries as biological technology is characterized as being very difficult and highly exploratory, requiring long periods of study and multidisciplinary cooperation, and entailing definite risks, it is suggested that the state formulate certain reward methods and personnel circulation policies suited to the distinct characteristics of agricultural technology development, giving it a certain amount of preference in taxation and foreign exchange management.

We firmly believe that guided by the strategic principles that economic construction must rely on S&T, and S&T work must be geared to economic construction, the rapid growth of our new agricultural technology will certainly invigorate our agricultural economy and speed up the pace of China's agricultural modernization.

12267/6091

### **Liu Jiang Discusses Rural Mechanization**

40060894 Beijing ZHONGGUO NONGJIHUA BAO in Chinese 18 Jul 87 pp 1, 2

[Article: "Ministry of Agriculture, Animal Husbandry, and Fishery Vice Minister Liu Jiang [0491 3068] Discusses Agricultural Mechanization: Agricultural Mechanization Must Be Well Embodied in China's Construction of Commodity Grain Bases, in Bumper Harvest Plans, and in Spark Plans; We Must Enhance Supervision and Social Services; and We Must Bring About Mechanization First in Economically Developed Regions and on State Farms"]

[Text] The last three questions that Ministry of Agriculture, Animal Husbandry, and Fishery Minister Liu Jiang discussed at the news conference on 13 July are as follows:

### **How Can Agricultural Mechanization Help Grain Production Rise to New Benchmarks?**

Agricultural mechanization is a major component of the material and technical foundation of agricultural production. If grain production in China is to rise to the benchmarks of 900 billion and 1 trillion jin, we absolutely must increase agricultural inputs and enhance our material and technical foundation. Developing agricultural mechanization is an important aspect of this. In the past several years the satisfactory overall state of grain production in China has resulted from an upsurge in peasant production initiative combined with long-term material inputs, and agricultural mechanization has played an important role in this. Similarly, we can see that after the system of job responsibility was implemented grain production was affected because some places had not done a good job of maintaining and developing their mechanized forces, had damaged a great many agricultural implements, had neglected water conservancy and irrigation facilities for years, and had not managed or utilized their existing machinery well. In some northern regions, because no deep plowing was done for a long time, the soil hardened, the weeds took over, and blight and insect damage was severe. Some places could not control weeds or drain waterlogged areas, and had little power to contend with the natural environment. These facts tell us that enhancing agricultural mechanization is a strategic measure for maintaining growing reserves in agricultural production, and that we cannot treat the matter lightly.

Agricultural mechanization is closely linked to grain production. For example, in the north, using machinery for deep plowing and deep scarification can improve soil structure and protect fertility and soil moisture, thus playing a major role in advancing production growth. For several years now, Wanggongzhuang Village in Tunliu County, Shanxi, has insisted on deep plowing and scarification, and villagers have returned broken stalks to the fields on a large scale. This has fostered soil fertility, and in this arid climate the per-mu yields for

grain have been maintained at over 500 kg. Or, for another example, mulching techniques have had a notable effect in increased yields. However, using manpower to lay down mulch consumes both time and labor, and the quality of coverage is also poor. If we use machinery to lay down mulch, we save time and labor and the task is done well. In addition, we may save mulch. Therefore, in order to popularize advanced agronomical measures on a large scale, we must also have mechanical techniques as safeguards. As for the effects of agricultural mechanization, everyone knows that in terms of labor productivity, the agricultural race against time, or resistance to disaster damages, in many respects humans and livestock are no substitute. To this we must also add that in some economically developed regions, mechanization can ensure fairly large-scale grain production, thus enabling the farmers to reap large-scale benefits for their efforts. This sustains enthusiasm for grain cultivation. This is another major function that mechanization plays in advancing grain production to higher benchmarks.

In order to ensure that mechanization makes an even greater contribution to grain production, we must make efforts in three areas: First, we must actively develop mechanization in the planting industry and improve the level of mechanization in farmland operations. With our primary emphasis on tractor plowing, we must continue to expand upon the base level, of 4.3 percent tractor-plowed land, that we regained last year. We must strive to expand our tractor-plowed land area to a historic high this year or next. At the same time, we must put efforts into the weak links of mechanical sowing and harvesting. Second, we must continue to popularize a number of key agricultural mechanization techniques to promote increased grain production and harvesting. These include mechanical mulching, mass-raising of rice seedlings, mechanical transplanting, precision seed drilling, mechanized dryland techniques, mechanized harvesting, and so forth. Third, we must ensure that mechanization is well-embodied in China's commodity grain base construction, bumper harvest plans, spark plans, and other major economic and technical activities. Simultaneously, we must do a good job of integrating mechanization with development of impoverished areas. On the one hand, in terms of funding arrangements, we must consider that mechanization and base construction are complementary, and on the other hand, we must make the integration of biological and engineering measures the major substance of the task. Commodity grain bases should be bases with rather advanced production measures. This will ensure that the bases are stable.

### **What Major Problems Must We Now Resolve In Developing Agricultural Mechanization?**

Agricultural mechanization is a rather complicated economic and technical system. To advance the cause of agricultural mechanization, there are a great many practical issues we must address: issues of quality in farm machine manufacturing; machine complementarity; improvement in the state of technology; funding; diesel

shortages; etc. However, in the past few years we have learned from our efforts that behind many practical issues there persist major problems in basic comprehension, basic theory, or basic policy—or perhaps we can call them major premises—which, if left unresolved, will mean that practical problems will not be settled satisfactorily. We believe there are three such major problems:

1. Comprehension problems primarily encompass two areas: The first is the problem of basic theory. When we undertook mechanization in the past, we followed a set of basic theories and methods and we had the major goal of basically achieving mechanization by 1980. Today, we still have not satisfactorily sorted through the theories and methods of the past, nor have we conducted a good theoretical analysis of past experiences with grandiose efforts at mechanization. As for future mechanization, there are still many major principles we have yet to resolve. For example, under the main issue of mechanization, we still have no clear understanding of the respective statuses of the state, the collectives, and individuals. In our investigation and research on many issues, we still have very little convincing material. Right now, the upsurge of many discussions on mechanization problems and the outpouring of social concern are good phenomena. Our task is to provide excellent guidance and further intensify study into agricultural mechanization theory. The second is the problem of comprehension, particularly comprehension of mechanization at every level of leadership. The increased discussion of mechanization at the provincial level in the past 2 years is a good thing. But we are also cognizant that, in terms of practical efforts, agricultural mechanization is still commonly neglected. It is essential that we enhance our efforts to publicize, particularly from the angle of strategic development, the importance and function of agricultural mechanization, and thus attract attention from all levels of leadership.

2. Policy problems are specifically apparent in our lack of policies in the past few years to cover strategies, tactics, measures, rates, focuses, and other major issues of agricultural mechanization. A failure to settle upon a basic economic and technical policy for developing agricultural mechanization will have a major effect on our cause. For example, right now over one-fifth of our agricultural machinery is already obsolete, but as of today we still have no policy for replacing it. A great many old, outdated machines and tools are still in use, and thus efficiency is low and waste is rampant. It is extremely urgent that we resolve this problem soon. Resolving policy issues depends on efforts in the professional sector to supply the state with policy information and to formulate a great many technical norms and standards. At the same time, the state must think over the need for mechanization and promptly issue policies on certain major mechanization issues.

3. The problems of supervising agricultural mechanization and providing social services: From a macroeconomic perspective, if peasants decide for themselves on the

selection and management of agricultural machinery, it will produce a certain amount of blind action and lead to the need to enhance supervision and social services. Right now the mechanism for supervising agricultural mechanization is rather weak and supervision methods are ineffective. The range of agricultural mechanization services is small and there are few projects underway. We are far from able to meet the need to stimulate circulation for the broad masses of peasants engaged in farming. Weak supervision and services are the primary causes for low efficiency in agricultural machinery and for difficulties in improving the level of agricultural mechanization. We urgently need to improve supervision and service levels. We must resolve this problem by rearranging the professional working relationships among the various levels of supervision over agricultural mechanization, by clarifying the supervisory mechanisms, and by strengthening agricultural mechanization service organizations.

#### **What Are the Prospects For Agricultural Mechanization in the Next Phase?**

Agricultural mechanization is historically inevitable, and if grain production is to ascend to two new benchmarks and we are to attain agricultural modernization, we must undertake to transform agricultural technology, readjust industrial composition, and develop commodity production. These tasks each require further mechanization. From the perspective of China's specific situation, the trend that will appear in agricultural mechanization will be as follows: in terms of regional distribution, economically developed regions, concentrated grain-producing regions, suburbs of medium and large cities, and state farms will start one step ahead of the rest and achieve mechanization first. This will provide an impetus for national development. In terms of projects, the planting industry will be the backbone and the level of mechanization on farming processes will improve steadily. Mechanization in animal husbandry, fishery, preservation, storage, and agricultural and sidelines processing will develop and expand in range and quality. In terms of management forms, the patterns of diverse economic composition in agricultural machinery

and the diversified form of economy will persist for a relatively long time. After a time individual agricultural machinery may enter a phase of stable growth. The various forms of management will supplement and complement each other, and each will contribute to our effort to tread the path of agricultural mechanization in China.

The Seventh 5-Year Plan for national economic and social development clearly suggests that we must stress the need for rural economic development and the need to readjust rural industrial composition. We must make adequate arrangements for the production of agricultural machinery and focus on improving the level of complementarity among tractors and tractor-pulled implements. We must develop new types of machinery and provide ready, complete, high quality machinery and equipment for agriculture, forestry, animal husbandry, sidelines, and fishery. We must improve the conditions of agricultural production and raise the level of mechanization. The plan calls for us to reach 46.67 million ha (700 million mu) of tractor-plowed land and 33.33 million ha (500 million mu) of electromechanically irrigated area by the year 1990. Based on the requirements of the Seventh 5-Year Plan and the trend of development in agricultural mechanization, in our future efforts we must implement a policy of "categorizing guidance, and emphasizing breakthroughs." We must target the different conditions in different regions and categorize suggestions for the direction, focus, and measures to take in mechanization. We must continue to implement a development policy of "maintaining economic diversification, perfecting development of the cooperative economy, and actively supporting specialized households." By enhancing supervision and services, we must improve the management level and macroeconomic benefits of mechanization. Under the guidance of a general policy of "simultaneous development of mechanical, semi-mechanical, and manual tools; simultaneous use of manpower, animal power, and electromechanical power; and integration of biotechnological measures and engineering measures," we must move the cause of mechanization forward.



### Reasons for Indifference Toward Ideological Education

40050/09a Lhasa XIZANG RIBAO in Chinese  
9 Jul 87 p 3

[Article by Chen Dehua [7115 1795 5478]]

[Text] The people's indifference toward ideological education is one of the difficult problems confronting ideological work. To cure an illness you must first investigate its nature, and then prescribe an appropriate remedy. To strengthen and improve ideological work, it is necessary to analyze the causes of this "indifference."

After looking at the problem from various angles, it appears there are many reasons for the people's apathy toward ideological education. Of these reasons, four may be taken as important.

1. Negative attitudes produced by the catastrophic damage and propagandistic errors of the "Cultural Revolution." Ideological work is the party's work. From its birth our party has given ideological work the highest priority. The growth and development of our party and our military, and the great victories of our revolution and national development, are all inseparable from a vigorous program of ideological work. Ideological work is indeed our glorious tradition, our cherished heirloom. However, there have been errors and setbacks. Since the 1950's, the party's propaganda work has suffered a "leftist" influence, affairs were managed unscientifically and the faith of the people was shattered. During the "Cultural Revolution" an utterly preposterous situation developed. Under the "Big Sham" of Lin Biao and the Gang of Four antiparty clique's direction, good citizens were wickedly misled, producing a legacy of inexpressible disgust and revulsion. The people were given an odious impression of propaganda education as "babbling pompous drivel and peddling garbage." Consequently, even after the string of calamities had ended, we were forced to use extreme caution in this area. After the 3d Plenary Session of the 11th CPC Central Committee, our party fulfilled its task of eliminating confusion on the ideological battlefield. The work of propaganda education returned to its proper course of Marxism-Leninism and Mao Zedong thought. However, due to a variety of causes, certain errors have appeared in the area of practical work. For example, preparing spurious reports, setting up false models, and writing superficial essays which propagate management in accord with economic laws to the detriment of ideology, etc. Although such hypocrisy and one-sided philosophy cannot be equated with the preachings of the "Great Sham" during the "Cultural Revolution," nevertheless they do create new, bad impressions. They forcibly recall memories of the past calamities in the minds of the people, fostering the conviction that "nothing has changed" and intensifying negative attitudes.

2. Insufficient understanding of governmental positions and functions in the new era cause dissipated and passive attitudes. Formerly, "class struggle" was the cardinal principle guiding the labors of our party. But after our nation entered the new historical period, economic development became the heart of the new course. Ideological work accordingly was shifted from its commanding position and turned to a subordinate, supportive role. This is entirely proper. It rationalizes all kinds of relationships, particularly the relationship between politics and economics. However, not a few comrades have adopted erroneous viewpoints and drawn mistaken conclusions. They suppose that at present the only concerns are the economy, and science and technology. As for ideology, they can take it or leave it. Obsession with material benefits is the current fad, and ideology is pushed to one side. Some comrades in technical vocations feel that a technical job is real work, while political study is merely auxiliary. Whether they study politics well, badly, or not at all makes little difference to them. Some political workers, accustomed to the former approach of "politics above all" are for the time being ill-adapted to the new terrain. Furthermore, as a result of simplified organization, the relative number of political cadres has declined. Hence the general feeling that political work is a "second rate" job, and that a career as a political cadre has "no future." This kind of underestimation of the position and function of political work in the new era is definitely widespread. It certainly contributes to the dissipated attitude in ideological work, which as a result becomes passive. We must answer the challenge of this lack of enthusiasm, and create a reformed and renewed spirit.

3. Education's pointless content and dull format cause boredom. As the popular sayings go, when making clothing, "first measure, then cut"; in molding a statue, "try a thousand different poses"; in writing a poem, "seek out the extraordinary in the familiar." Likewise, ideological work can by no means limit itself to a single arbitrary approach. The special characteristics of the educational audience must be firmly grasped, only then will the desired goals be realized. However, in some grass-roots units ideological education has no specific target, no direction, its techniques remain simple and its format monotonous. For example, some careless units actually pass on word for word the educational programs received from higher up, without regard for the particular nature of their audience; old or young, higher or lower, all are dosed from the same bottle. Some units teach straight from the book, droning on about theory and ignoring practice, they rehash the same old topics like reheating leftovers. Some feel political education is a simple process of a) read the newspaper and b) discuss it, reducing the work of many years to a formula. How can this kind of education fail to bore people? As time goes on, the people will inevitably develop a callous jaded attitude towards ideological teaching.

4. Educators themselves suffer from low prestige, with consequent uncertainty about educational goals. Psychology holds that people turn to prestigious and

respected individuals for reliable information. "In general, everyone can automatically, swiftly and easily accept propaganda from a person they love and esteem; conversely, people automatically reject the views of a propagandist they find unpleasant." Since working with people, educating people, and propagandizing people is the task of cadre leaders at every level and of all political cadres, all of these cadres should be considered propagandists. The success of educational programs is directly related to the esteem these cadres command from their audiences. Generally speaking, a person's prestige depends on two factors. The first is quality, or competence. An ideological worker serves to shape the mentality of the people, to broaden their view of the world, to spark their intelligence, to nurture their minds and bodies, enrich them, civilize them, arouse them, and beautify them. Thus they will become socialism's "new men," possessing the "four attributes" (ideals, morality, knowledge, and strength). This task requires the possession of a great variety of talents and training. It requires not only specialized skills but also broad learning. It necessitates not only a thorough understanding of ideology as such, but also intensive study of connected and related disciplines. Only through a rich harvest of expertise from a hundred disciplines can we "mount the lofty tower to scan the highest heavens and the deepest valleys." Only then can we view our heartfelt desire of scene after scene in a happy, living human drama. Then can we be truly called "master engineers of the human soul." regrettably, propagandists such as this have heretofore been rare. In the past several years, the contingent of political workers has markedly improved in quality. However, this development has by no means been steady. The ever-increasing organizational demands of the educational objective have not been met. At present, a fairly large proportion of political cadres have a high school education, some who have diplomas are still limited in knowledge, and slow to learn. Thus it will be difficult to avoid situations in which the students are equal to, or more advanced than, their teachers. the political personnel in some grass-roots units have a high turnover, many workers lack testing and experience. Some workers are unable even to compose teaching plans, teach classes, set up an educational program, or even write a simple bulletin. It is no wonder that people come away with the impression that "political cadres have no great talent, anyone could do that job." It is then difficult for anyone to accept the point of view propagated by the cadres.

The second factor influencing prestige is behavior and moral character. The Analects contain this passage: "If your personal conduct is upright, you can rule effectively without the need to issue commands. If your personal conduct is improper you may issue commands, but they will not be obeyed." This passage from Confucius shows great insight, and is echoed in the common saying that if you want to forge iron, you must be tough yourself. To rectify other men you must first rectify yourself. The ideals of behavior presented to the people by cadre leaders, visible, tangible, reliable, and true, in particular serve as a wordless summons: leading the people to trust, support, and follow the cadres. Why did the heroic account of Liangshan provoke such a fervent response in the hearts of a billion people across the country? Aside from the admirable spirit of the people and the worthiness of their goal, an important reason was the heroes' sincerity and forthrightness. Through their own glorious accomplishments they conquered the hearts of the people.

If an ideological worker is "long on words but short on action" he may reach the state where his actions serve to refute his every word. He preaches hard living and arduous struggle to the people, but seeks ease and comfort for himself, shunning toil and discomfort. He demands that others unselfishly serve the public, but uses his own office and influence for private gain. He exhorts his comrades to be upright men, but he himself bribes and flatters, seizing every chance to curry favor for his own benefit. Thus, while "rectifying other people," he naturally feels timid and guilty, while the people suspect him of being a mere opportunist. The more lectures such a man delivers, and the more vehement he becomes, the more people are disgusted and the fruits of the teaching are lost.

Owing to the variety of reasons described above, an "indifference" towards ideological teaching has appeared among some members of present-day society. The responsibility facing us now is to seek out the fundamental causes of this problem, create conditions, promote personal and social change, and transmute the negative mentality of the people into a new realm of thought conducive to ideological work.

**Development of Solid Propellant Missiles**  
40050001 Beijing DANGDAI ZHONGGUO DE  
HANGTIAN SHIYE [CONTEMPORARY CHINESE  
SPACEFLIGHT] in Chinese 1986 pp 126-50

[Chapter Three, "Solid Fuel Rockets"]

[Text] Solid fuel rockets are flying bodies which use solid fuel motors to supply thrust. They are structurally simple, small in size, highly efficient, highly maneuverable, have a short launch preparation time, and have a high specific impulse. For these reasons they have developed rapidly and have broad applications.

China's solid fuel rocket technology has developed independently, relying totally on Chinese resources. Beginning in the late 1950s and going through almost 10 years of exploration until the late 1960s, China's solid fuel rocket technology was in a research and model development stage. In the course of large-scale solid fuel motor R&D for solid fuel rockets, a number of solid fuel motors needed for tactical guided missiles and aerospace engineering were successively developed. These include the solid fuel third stage of the CZ-1 launch vehicle, the solid fuel retrorockets on recoverable satellites, and the apogee motor of the experimental communications satellite. In October 1982, China successfully launched a solid fuel rocket from a submerged submarine, embodying the level of our solid fuel technology at that time. Section 1. Solid Propellant Rocket Motors

#### 1. Early Explorations

China's solid fuel rocket technology developed out of solid fuel rocket motor R&D. A solid fuel rocket motor is a propulsive power plant which utilizes the chemical energy of a solid propellant to directly produce a reacting force; its core is a solid composite propellant. For this reason, not long after the Ministry of National Defense's [MND] 5th Institute [yuan 7108] was formed in 1956, a solid propellant research group was established within the propellant research office existing at that time. At first this group consisted of only three college graduates who had just finished school. The number of personnel gradually increased to more than 70 in 1960. Under the guidance of Li Naiji [2621 0035 2555], director of the research office, solid composite propellants were chosen as the primary problem to attack, and basic investigations into solid fuel rocket motors began.

With the historical conditions of the time, foreign solid fuel rocket motor technology was tightly held. Within China, the chemical engineering base was still quite weak and the main raw materials needed were totally unavailable. Pioneering work faced numerous difficulties. Although the youths of the research group had never studied the specialized field of solid propellants, they relied on their enthusiasm and dedication to high technology, searched everywhere for data, and ventured into this strange new realm. From foreign data they gained an understanding of some essentials of solid fuel motors

and took the initial steps in removing doubts about how solid fuel motor research was to begin. They analyzed and researched enlightening topics such as "composite propellants," "case-bonding," and "internal star grains," learned new concepts of solid fuel motors, and gained an initial understanding of the major steps for production. Roughly, that is to use a composite solid propellant which can be poured; use casting techniques to directly fill a motor case with propellant so that upon hardening it forms a grain which closely adheres to the case's inner wall; the grain has a star-shaped internal hole which, once ignited, will burn evenly from the inside out and will not destroy the case with excessive heat.

The composition of composite solid propellants is described in foreign data very broadly as formed from a solid oxidizer and a bonding agent which acts as a fuel. Potassium perchlorate was once used as an oxidizer, but this was followed by ammonium perchlorate with its higher performance. There were no reports about the bonding agent. Afterwards, it was discovered in literature that foreign countries had synthesized thiokol in the early 1940s. This is a liquid rubber which will flow and can harden. Couldn't materials in a liquid state be poured? These youths were inspired by this and determined that thiokol was a bonding agent in solid propellants. They decided to try to solve the casting problem using thiokol.

Research begins with a determination of the raw materials to be used. The Chinese Academy of Sciences' Changchun Research Institute of Applied Chemistry took on the research task of synthesizing thiokol in the laboratory, succeeding for the first time in the spring of 1958. The institute was involved in this type of research over a long period of time, supplying many types of bonding agents for solid fuel motors. In the summer of 1958, large-scale trial production of thiokol was shifted to the Jinxi Chemical Engineering College. In order to solve the oxidizer problem, the Harbin Military Engineering College first supplied two tons of potassium perchlorate, and the Shanghai Hengxin Chemical Plant then succeeded in the trial production of ammonium perchlorate (afterwards, the Dalian Potassium Perchlorate Plant took on the long term task of producing this item).

With the two raw materials above, composite propellant research work formally began in early 1958. The research group worked on formulating a propellant in several dilapidated physical chemistry laboratories which were hastily refurbished. Due to the poor quality and high viscosity of the thiokol test samples at that time, the fuel produced had poor fluidity and could not be poured. The only thing produced was a hand-crafted grain the size of a fountain pen. In the last half of 1958, the MND's 5th Institute ignited China's first composite propellant grain at a celebration meeting. Its brilliant flame lit the hopeful path for our solid fuel rockets.



To allow composite propellant research to proceed more quickly under more ideal conditions, beginning in the latter half of 1959 the MND's 5th Institute established a cooperative relation with the Xi'an 3d Research Institute and Factory 845 (now subordinate to the Ministry of Ordnance Industry), and sent technicians to these locations to participate in the research work. With the concerted efforts of both [sic] parties, through repeated research, analysis, and testing, special techniques were finally found which would improve propellant fluidity and make it possible to pour the propellant. In 1960, using special technology, a 65mm diameter test motor was poured without a hitch and successfully went through a hot test. The specific impulse value was quite high, verifying that composite propellants have high energy. For this work, the cooperative group led by Zhao Shizhao [6392 0013 2507] received a collective merit citation, third class.

Breaking through the casting technology barrier established a foundation for the overall development of exploratory work. To promote the development of this new technology, the National Defense Science and Technology Commission held a national conference on propellant programs in January 1961. The meeting clarified near term research aims and tasks for all types of propellants, drew up a 3-year development plan for composite solid propellants with energy milestones, and mobilized relevant personnel nationwide to divide work, cooperate as one, and realize the goals of the program. After the conference, in order to concentrate talent and resources to tackle the problem, the MND's 5th Institute reorganized all of its personnel working on solid propellant research and sent them to the Xi'an 3d Research Institute where both parties cooperated even more closely. By the end of 1961, thiokol composite propellant research had broken out of the confines of the laboratory.

In 1962, although the country experienced economic difficulties, it was decided to establish China's first solid rocket motor research institute at the MND's 5th Institute. Xiao Gan [5135 3227] (formerly director of the Xi'an 3d Research Institute) was appointed director.

After the solid rocket motor research institute was established, its first task was to modify a booster to use composite propellant as replacements for the original binary ones. At the same time it produced a simple, uncontrolled test motor with a diameter of 300mm. To advance the testing as quickly as possible, with the cooperation of Xi'an Factory 845 a trial production line for casting composite propellant was first set up in the fall of 1962. It was the first time a new large-scale mixer was used for mixing propellant. A test motor was successfully poured and went through a hot test on a mountain slope.

However, in the arduous course of exploration, due to lack of experience and an insufficient understanding of the dangers of composite propellants, as well as imperfect working conditions, the pioneers in this field paid

the price in blood. On 6 December 1962, while casting a 300mm motor, the more than 200 kilograms of chemicals in the new mixer suddenly caught fire and exploded, causing a serious fatal accident. Two female comrades, Chen Sumei [7115 4790 2734] and Han Yuying [7281 3768 5391], sacrificed their lives at the scene of the explosion, and comrades Wang Zengxiao [3769 1073 1321] and Liu Enke [0491 1869 0344] suffered serious injuries and later died. This painful lesson produced a heightened understanding of dangerous articles, and from this time on, strict safety measures were adopted to reliably ensure safe motor casting over the long term.

In 1963, National Defense Science and Technology Commission Vice Chairman Zhang Aiping inspected work at the solid motor research institute and, focusing on the debate over what should be the next step in solid fuel motor development, proposed a guiding ideology whereby basic technical problems would be solved first and steady progress made, clarifying the policy of "striving for utility first and improvements later." Based on needs for expanding research work, the Solid Rocket Motor Sub-institute [fenyuan 0433 7108] was established in April 1964 on the foundation created by the solid motor research institute. In August of that year, a planning conference for solid propellants and solid motors was held, summarizing the experiences and lessons of the previous stage of research. It pointed out the tendency to slight the complexities of solid fuel motors and rush toward producing operational models, and made clear that solid fuel rocket technology was still in an exploratory stage to establish a foundation and that solving basic technical problems and building a firm foundation were primary. After the meeting, the 300mm diameter motor was ranked as the central task. The goal of this project was to see a motor through the entire research and development process (including flight testing) and to fully expose problems encountered under various conditions, then to clearly understand the technology of solid fuel motor research and development, realize its rules, and summarize the management experience. This type of motor research first of all spurred on research in perfecting propellant formulae which then improved propellant casting technology. Second, it exposed technical problems of grain cracking and unstable burning. In January 1965, the 7th Machine Ministry's solid motor research institute held a technical work conference which emphasized studying the problem of unstable burn in the 300mm motor, and also stressed the importance of doing basic technical research and being determined in pursuing preliminary research in a single technical aspect, thus making technical preparations for the next developmental step. To this end, with the cooperation and support of all relevant organizations nationwide, a large number of single technological research topics was arranged. These included research in new bonding agents, superstrength steels, fiberglass, nozzle and throat liners, thrust-vector control and thrust termination, and technology for motor test firings.

Research work on the 300mm motor sped up in 1965. Problems with grain cracking and unstable burning were

successively solved, and after 28 ground firings in addition to storage, shock, vibration, and transportation testing, six motors successfully completed flight trials (uncontrolled) in the summer of 1965, proving the motor structure to be reliable, the work stable, and the results repeatable. At this point the small-scale motor finished the R&D process and made an important step in the history of solid fuel motor development, laying a solid foundation for the development of large- and medium-size motors.

## 2. Research in Operational Models

In the mid-1960s, to meet the needs of aerospace engineering, solid fuel rocket motor technology began to work toward operational models, successively expanding research in several types of solid fuel motors used in launch vehicles and on satellites.

At that time the solid fuel motor research institute had just moved from the southwest to northern China and was not yet firmly established. Basic construction was not complete, working and living conditions were extremely problematic, motor case trial production, propellant casting, and trial firings lacked basic conditions, administrative and design work were cramped into the only living quarters, and the family members of workers were only able to find accommodations 10-20km from the base. It was under these arduous conditions that the research for China's first CZ-1 solid fuel motor third stage took place.

### (1) Solid Fuel Final Stage Motor of the CZ-1.

Based on the requirements of the CZ-1's overall plan, the solid fuel third stage motor has a diameter of 770mm and length of 4 meters, is filled with 1.8 tons of propellant, will ignite at an altitude of 600km, and operates while rotating at 180rpm. Verification of the plan began at the end of 1965, and initial designs were done in April 1967. It was finally determined that thiokol would be used as the propellant, the case would be high-strength steel (rolled by Anshan Iron and Steel), the extended portion of the nozzle would use tiles pressed from a thermal insulator, and the lining of the nozzle throat would be graphite.

When work on this motor began, the entire country was in the midst of great turmoil. Research had to overcome technical and material difficulties, as well as eliminating interference from the upheaval. Workers at the Shenyang Xinguang Machine Plant, responsible for finishing the case, continued production in an environment of armed combat. Since propellant casting requires that every production line work consecutively without interruption, given the very irregular sequence of production at the casting plant, technical directors had to be on the scene to locate cadres for every post, and casting proceeded smoothly. While working on trial production, they also raced to set up equipment for high altitude simulation and rotation testing.

The 770mm motor was first put through rotation testing on 26 January 1968. The motor was erect on a vertical testbed, and several small rockets were strapped on to the outside of the case to impart spin. Thirty seconds after firing, the motor exploded. Flaming, it broke away from the testbed as the test failed. Analysis after the incident showed the cause to be debonding. Afterwards, under the guidance of Deputy Director Yang Nansheng [2799 0589 3932], improved measures were adopted which successively solved the problems of debonding and aluminum oxide buildup during the burn.

From early 1968 to the beginning of 1970, the motor went through 19 ground tests of which 5 were high altitude simulation tests. Testing was a complete success, all technical indices met design requirements, and the product was delivered for use. China's first satellite launch succeeded on 24 April 1970, and the launch vehicle's third stage solid fuel motor completed its final boost mission, scoring an achievement for China's first aerospace activity.

### (2) Solid Retrorocket for Recoverable Satellites.

For a satellite to return to earth, it is necessary to use retrothrust to cause the recoverable capsule to leave its original operational orbit and move into a return trajectory. This trajectory shift is generally implemented using simple and reliable solid retrorockets.

Since the retrorocket motor is a part of the recoverable satellite, it has to ignite at high altitude in extremely low temperatures after circling the earth for several days, and it is necessary to be able to do this with high reliability. So that the recoverable capsule accurately returns to the planned area, the overall design of the satellite places great demands on the motor's total weight and accuracy of total impulse. According to requirements in the satellite's overall plan, the motor employs a spherical chamber, a new propellant grain, recessed nozzle[s], and a tailring igniter. Based on new requirements in the overall plan, the original plan was modified in 1971 when a new propellant with higher energy was selected.

In 4 years of retrorocket research, difficult problems were solved in igniter technology, reducing aluminum oxide deposits, reliably igniting in a vacuum, controlling the temperature of the motor head's exterior wall, and ensuring a precise total impulse. Of these, reducing aluminum oxide deposits became especially problematic. This was because the motor operated while rotating at 100rpm and the aluminum oxide produced by propellant combustion was centrifugally deposited on the chamber walls, causing the spent weight to exceed the overall requirements. After employing technical measures to reduce the aluminum oxide buildup, design requirements were fulfilled.

From August 1971 to the end of 1974, the retrorocket went through more than 10 comprehensive ground tests, including many tests simulating high altitude ignition.

The motor was finally supplied to the recoverable satellite as planned and made an important contribution to the satellite mission. Since 1975, China has successfully recovered satellites many times, demonstrating the motor's reliability and stable performance.

### (3) Solid Fuel Apogee Motor for Communications Satellite.

The role of an apogee motor is to accurately propel a synchronous satellite from an elliptical orbit to a quasi-stationary orbit. It is one of the keys to placing a satellite into a synchronous, fixed position. According to relevant data, foreign countries experienced many apogee motor ignition failures and irregular performance in the course of stationary satellite launches, leading to total failure of the missions. How to ensure motor reliability was therefore of prime importance.

The overall plan for communications satellites made much higher demands on the apogee motor in terms of capability and accuracy than the previously developed solid fuel motors. This was especially true for the reliable ignition and performance needed at an even higher altitude (that is, in a vacuum) after a longer period of operation. To satisfy these requirements, the solid fuel apogee motor employed several indispensable new technologies.

—Motor Case. This used a high strength, lightweight fiberglass case. Since the layout of the satellite body required that the solid fuel apogee motor have a short, squat shape, the chamber resembles a flattened persimmon. Machining this type of shape creates great problems in wrapping the fiberglass. After many investigations, the technology was improved and eliminated flaws in quality often occurring in the wrapping process. This allowed the strength of the chamber case to totally meet design specifications.

—Solid Propellant. A new propellant with higher energy was employed. This propellant is easily ignited and burns stably, ensuring reliable ignition and startup in a vacuum. To raise the packing coefficient, the motor propellant also employed an advanced grain.

—Accurate Control of Total Impulse and Specific Impulse. To satisfy the needs of a communications satellite in terms of solid fuel apogee motor specific impulse error, thrust deflection, and lateral drift, measures were taken during research to control propellant precision: a high precision scale was used to rigorously control the weight of the propellant and reduce machining error as much as possible. To improve the accuracy of thrust measurement in ground testing, researchers took it upon themselves to modify the sensing apparatus so the accuracy of static thrust ratings was improved and reached the specified technical requirements. They also improved the rotating test frame, using a force sensor accurate to several 100ths of a percent to measure the thrust deflection value.

In addition, apogee motors experienced delamination and debonding during research, resulting in test failures. These problems were quickly solved by improving the composition of materials and strictly controlling the techniques used to bond the thermal insulating layer.

During research from 1978 to 1982, 45 ground tests of the apogee motor were conducted, 10 of which simulated high altitude. The product was delivered in September 1983.

In August 1984, China launched its first experimental communications satellite, using the CZ-3 to place the satellite into transfer orbit. The satellite's apogee motor was under the control of the ground telemetry and control station, and started immediately after the ignition command was sent from the ground. It successfully injected the satellite into quasi-stationary orbit.

### (4) Two-stage Solid Propellant Rocket Motors

At the end of 1965, the overall planning department for solid fuel rockets drew up requirements for an even larger diameter experimental motor with practicality in mind. The goal was to gain experience in the design and trial production of large-scale motors. It was decided then to use the familiar thiokol propellant as a way of saving time, and also to utilize the results of 300mm motor technology to quickly set up a large-scale propellant casting plant and large-scale testbed, and to hold training drills in casting the 654mm motors.

Trial production of this large motor met its first difficulty in 1966 when the heat treatment furnace was too small to treat the metal case of the motor. Responsible for case production were the Shenyang Xinguang Machine Plant and the space launch vehicle final assembly plant, which quickly solved the problem by creating a clever method of "sectional tempering." After the case was poured, the first large-scale experimental motor successfully completed its initial full testing on 1 December of that same year, showing that China's large-scale solid fuel motor research had progressed a gratifying step.

In 1967, the National Defense Science and Technology Commission handed down a mission to develop China's first two-stage solid fuel rocket. According to the overall plan, the first and second stage rockets would use newly developed large solid fuel motors. The motor cases would use super-strength steel just then undergoing trial production, the propellant would be a newly developed type, and the nozzle throat lining would use new heat- and corrosion-resistant alloys. To ensure safety, an ignition system was developed with built-in safety mechanisms. Also employed were two new technologies, thrust-vector control and thrust termination. Although in terms of international standards this technical plan was not very advanced, producing this type of motor in China faced great difficulties. There was no technical base, many individual technologies had not yet succeeded or



had not even begun to be researched, and many materials needed to be produced simultaneously with the motor. Materials used in the two stages specified 210 items in 91 categories, and their production involved 55 organizations in the industrial ministries of chemical engineering, metallurgy, light industry, petroleum, machinery, and ordnance. Almost every type of material had special requirements, involved great technical difficulty, and needed a long period for development.

Every industry and scientific research department expended tremendous effort in solving the problems in motor materials. For example, the Changchun Institute of Applied Chemistry and the Lanzhou Chemical Engineering Research Institute supplied a new bonding agent after many trials, creating conditions for propellant research. Relevant organizations within the Ministry of Metallurgy and the Beijing Steel and Iron Research Institute produced a high strength, low-alloy steel for the case and heat- and corrosion-resistant alloys for the nozzle throat.

A solid motor needs to have a thrust-vector control apparatus to give the attitude control system sufficient turning moment to control the rocket's flight and correct its attitude. The first stage utilized a swiveling nozzle for which no preliminary research had yet been done. This consisted of a swiveling nozzle controlled by a servo mechanism and mounted on the motor. When the motor is in operation, the nozzle swivels up and down or right and left to change the direction of thrust, producing a moment of force in the rocket body. From 1967 to 1968, swiveling nozzles on the 300mm motor underwent only three programmatic tests. Because of the short burn time, existing problems were not fully revealed. When it was time to transplant this plan to the first-stage motor, many tests ended in failure. It was then necessary to construct a refrigerated laboratory to start from the beginning. It was not until September 1979, after hundreds of cold room tests and 15 first stage hot tests, that a series of complex technical problems such as controlling moments of force and sealing the equipment was solved. The second stage motor makes use of pneumatic secondary injection technology. This uses an external liquid substance which, after being pressurized, passes through valves opened by commands and is injected into the diverging sections of the motor's four fixed nozzles, deflecting the main flow and acting to change the direction of thrust by creating a moment of force. This advanced technology was first studied in 1963 and had a certain foundation. At the beginning of 1979, it was tested 5 times on the second-stage motor in high altitude simulation, verifying that its special features and lateral control force satisfied design requirements.

To meet the accuracy needs of the guidance system, a solid fuel motor needs to have a thrust terminator. The reverse-thrust nozzle used was first studied in 1963. At the front of the motor were several small nozzles (called reverse-thrust nozzles) pointing in the opposite direction to the main nozzle. Each reverse nozzle had an opening

mechanism and was required to operate in synchronization. When the solid fuel rocket completed its powered flight and attained the required velocity, a computer aboard the rocket would issue a command which would immediately open the reverse-thrust nozzles, and the sudden drop in motor chamber pressure would act to terminate forward thrust, causing the rocket's reentry vehicle to follow its inertial trajectory and continue toward the target.

Apart from the difficulties in new materials and propellants encountered in the mockup stage, there were also serious obstacles met in the debonding of the propellant from the motor case, sealing, and motor case structural strength. This, coupled with insufficient research measures and a lack of non-destructive equipment with which to test the propellant grain, caused the research work to face numerous difficulties. Although the first mockups of the first and second stage motors underwent full testing in April 1970 and achieved an initial success, many subsequent tests did not go smoothly and experienced a low rate of success. Over a longer period of time the entire motor research effort wavered, becoming the lowest point in solid fuel rocket engineering. The cause of this situation was that the "Great Cultural Revolution" had halted most scientific production, and not only the two-stage solid fuel motor, but other motor types were also delayed, with accidents occasionally occurring. On 16 March 1974, Wang Lin [3769 2651], enthusiastic deputy director of the propellant compounding line, returned to the plant after work one day out of concern that the propellant might not be mixed in time to carry out early testing. Upon reaching the production line he inquired as to its status, and the mixing had already reached the crucial point for results. He stayed and helped the others, putting in order some compounding equipment behind a protective wall. Suddenly there was a huge noise as the propellant in the mixer exploded due to compounding problems. The blastproof door was destroyed by the wave, coming off its hinges and seriously injuring Wang Lin who later could not be saved and gave his precious life for the solid fuel rocket endeavor.

After smashing the "gang of four," solid fuel motor research took a favorable turn. The first stage of the two-stage solid fuel motor, which had struggled to advance during the torturous 10 years of turmoil, completed full testing in early 1978; in May, initial development was complete. Following this, under the organization of solid fuel rocket deputy chief designer Cui Guoliang [1508 0948 5328] and Shao Aimin [6730 1947 3046], test samples of the motor in one stroke made breakthroughs in motor case strength and first-stage thrust vector control. In more than 10 full ground tests of the first- and second-stage motors, everything was successful and fulfilled the requirements of the rocket's overall design departments. The official product was made available to the overall design departments beginning at the end of 1980. The motor underwent complete

examinations in numerous overland test flights, especially in trial launches from a submerged submarine, and proved its performance to be stable and its quality reliable. Up to this point, China's solid fuel rocket motors had achieved new, important technological breakthroughs, and had established a material and technical foundation for China's second generation of large-scale solid fuel motors.

#### (5) Second Generation Large-scale Solid Fuel Motors

With national approval, construction on a new solid motor research base in the Sanxian area began in 1966 to further research the second generation large-scale solid fuel motor. Because of the 10 years of turmoil, the construction period was extended, and a number of engineering projects were not turned over for use until 1975. In 1978, this base took on the task of developing the fiberglass case solid fuel apogee motor. Using the efforts directed toward the new technologies of this motor, preliminary research in individual technical projects for the second generation motor was stepped up, and advances made in new grains, flexible nozzles, heat- and corrosion-resistant materials, and various types of igniters.

Beginning in 1979, designers on one hand used the base of experience gained in large-scale motor research to carry out tests on experimental motors of increased dimensions; on the other hand, they stressed large-scale propellant grain technology and large-scale fiberglass case processing. On 4 February 1983, a large-scale solid fuel motor with a large diameter metallic case containing several dozen tons of propellant achieved initial success in a hot test. On 25 and 28 December of that same year, the second metallic case and first fiberglass case large-scale solid fuel motors succeeded in hot testing. Congratulatory letters were issued by the CPC Central Committee and the State Council, highly praising these results and pointing out that these victories showed that China's solid rocket technology had entered a new stage. Section Two: Submerged Launching of Solid Fuel Rocket

With consideration of the importance of solid fuel rockets to aerospace technology, in 1965 a special committee of the CPC Central Committee clearly suggested that we should strive to produce a solid fuel rocket earlier than planned. Initial results in our large-scale solid fuel motor research were attained in 1967, preliminary research in other solid fuel rocket technologies had already begun, and the solid fuel rocket overall design department and control system research institute had successively been established, providing the basic conditions for solid fuel rocket research. Based on national needs of that time, the National Defense Science and Technology Commission decided to concentrate efforts on developing a submarine-launched solid fuel rocket.

China's development of its first solid fuel rocket had skipped the single stage phase and gone directly to a two-stage rocket; it skipped the ground-based rocket

phase and gone directly to developing a submarine-launched rocket. Because it had to be fitted into a submarine and the volume of a solid fuel rocket was much less than a liquid propellant one, it was necessary for all instrumentation on the rocket to be lightweight and miniaturized; also to be solved were the complex and unique overall and subsystem design problems associated with launching a rocket from underwater. For example, conducting a submerged launch and the rocket's characteristics while moving through water; the role of the submarine's movement and ocean waves and currents in causing errors in attitude and trajectory if the rocket deviates from the perpendicular at time of ignition; the safety of the rocket not igniting while in the launch tube, and its ignition reliability once ejected; leveling the rocket's gyroplatform, aiming, and setting computer launch data while the submarine is moving; requirements for air and watertightness, and the technology for stage coupling and separation; tremendous stresses on the rocket while underwater; adverse conditions aboard the submarine, including poisonous fungi and mists of oil and saltwater; and the matching and coordination of inertial guidance, computer, and telemetry and control equipment on both the rocket and submarine. In the course of development, this series of technical difficulties required researchers to expend great effort and start over in exploring and solving them.

In keeping with the principles of self-reliance, the overall plan evaluation for solid fuel rockets in 1967 called for all of these technical problems and all parts and materials to be domestically produced. The determination of technical targets and the selection of a technical course had to utilize China's technological base, especially results and experience in developing liquid fuel rockets. Based on these requirements, the solid fuel rocket technical plan called for the two-stage motors to use solid composite propellants and a steel case; a coupled compensator [jielian buchang 2212 5114 5943 0326] plan was selected for the rocket's control system and guidance (this was later changed to a gyroplatform/computer plan, using a small, highly precise 3-axis liquid suspended gyroplatform); inertial measurement equipment, a first-stage swivelling nozzle, and second-stage liquid secondary injection thrust-vector control were chosen for the attitude control plan.

At the beginning of rocket development, determining a reasonable large-scale testing procedure is extremely important. If test procedures are not scientific, not only will they influence the progress of research, they will also create tremendous expenditures of financial and material resources. According to reports, similar rockets in foreign countries usually go through many levels of testing before being placed in a submarine for launching. We decided to go directly to submarine submerged launch testing after evaluating launch platform and launch tube testing on land. This was our three-step "platform, tube, sub" testing procedure with Chinese characteristics.

In November 1967, the National Defense Science and Technology Commission and the Navy jointly held a meeting to examine and approve this plan. They fixed the overall plan, clearly divided tasks, decided that the National Defense Science and Technology Commission's testing base and the Navy's training base would divide the responsibility for constructing land and sea test sites, and immediately began the work of preparing for construction. Based on the demands of this conference, solid fuel rocket research opened up extensively.

According to the conventional order of rocket development, upon determining the overall and subsystem plans, an overall shift to actual implementation of the plans should occur to begin development of a prototype. However, both the technical ranks and technical foundation, and the basic conditions of production and testing, were all not suited to the needs of development work. For this reason, in the entire prototype development phase, adjustments in the technical ranks and research structure, as well as the construction of production and testing conditions were needed, and many key technologies were tackled. It was especially due to the influence of the "Great Cultural Revolution" that prototype development exceeded the predicted time frame by quite a few years. Prototype development was the most torturous and arduous stage of the solid fuel rocket's entire development.

Because of the above problems, many of the technical problems to be solved in the design phase remained. Prototype equipment could only be developed if these key technological problems had breakthroughs as quickly as possible.

The principal problem was still that of launching while maneuvering underwater, and this permeated the research from beginning to end, determining the success or failure of the rocket. According to the technical route as set during overall plan evaluation, experimental development would be conducted with a scaled-down model while simultaneously continuing to develop a full-size experimental rocket model.

In the course of testing and developing the scaled-down model, research in underwater fluid dynamics was begun to provide basic mechanical parameters for calculating the rocket's underwater trajectory; underwater ballistics were studied to learn the principles of attitude changes while the rocket is in the water and after it emerges from the surface, and to supply data for the design of the control system; to grasp the complex stresses placed on the rocket while underwater, and to provide a calculations of strengths needed in designing the entire ejection system, research was begun on the underwater loading environment and submerged ignition testing. None of these complex technical problems could be compared with any prior experience, and there was no foreign reference material. Our youthful technical personnel

bravely forged ahead and began by analyzing the characteristics of the rocket's movement underwater, followed by testing the results and correcting them. After a great deal of theoretical analysis and calculation, they set out with different testing goals and determined plans for the scaled-down model and testing. From 1969 to 1984, using several scaled-down models and model rockets of differing proportions, they carried out almost 1,000 tests of various types, amassed a rich collection of test data, and filled in this technical void. Through these tests, they initially grasped the principles of submerged launch technology.

Full-scale development of a test model progressed at the same time as the scaled-down model's testing and development. Developing a full-scale model for testing not only would allow verification of the understanding gained from the scaled-down testing, but would also gain a set of even more accurate data related to the rocket's movement underwater. At the same time, parameters for the launch system could be determined in an actual sea environment. To test the launch apparatus on land, the Type-I experimental model, with mass corresponding to the actual rocket, was first developed. From 1970 to 1977, the 13th Institute of the 6th Machine Ministry's 5th Institute completed a series of ejection tests on land. Key technical problems of the launch system were solved through this testing, and it was first determined to employ a cold launch apparatus, that is, to use high pressure gases to eject the rocket from the launch tube. The key to carrying out comprehensive testing of underwater launch technology was to develop an experimental model rocket which could conduct monitoring and be recovered. Designers studied several foreign plans and came up with a clever plan. However, one crucial problem to be solved was insuring the safety of the submarine and not allowing an accident which would smash it. To this end, not only did they carefully consider design, but 20-odd recoverable tests were also carried out. Second was the problem of testing the rocket's strength, and that involved dropping it from several dozen meters above the ocean surface and making sure that the body did not rupture. Generally this type of problem could be solved using special equipment to conduct dynamic and static strength tests, but there were none of those facilities at that time. To build the facilities would require great expense and a long period of time. To save on expenditures and save time, the designers used diligent analysis coupled with our national circumstances to boldly suggest using the Changjiang Bridge to test dropping the rocket body and carry out an actual evaluation. Personally led by chief designer Huang Weilu [7806 4885 4389], the designers came to the just opened Changjiang Bridge in Nanjing. With strong local party, government, and military support and cooperation, they struggled for several consecutive nights in August 1970, dropping the Type-II experimental model rocket into the water from different attitudes. They evaluated the strength of the rocket body and verified that it could be reliably recovered. There were then further land-based ejection tests from the launch tube. In October 1972, an experimental



submarine conducted a submerged launch test of the Type-II experimental model for the first time in actual sea conditions, completely achieving the anticipated test goals. The completion of this scientific task had great significance in conquering the difficulties of submerged launch technology. For this reason, the Central Military Commission specially sent them a congratulatory cable.

Of the difficulties in developing a solid fuel rocket control system, one is guidance precision, and another is how the control system adapts to the angular attitude at time of ignition. Under the management and guidance of Chen Deren [7115 1795 0088], director of the control system research institute, the designers solved the technical difficulties encountered one by one.

Guidance accuracy is to a great extent determined by the selection of a guidance system plan. When plan verification work began in 1967, two proposals were made: first, to use the familiar coupled compensator already used by liquid fuel rockets; second, to use a gyroplatform/computer. Miniature liquid suspended platforms were at that time still in the exploratory stage. In 1968, after further analysis, calculations, and verification, it was thought that the coupled compensator plan would be difficult to implement because of the maneuverability of the rocket underwater. It was finally decided to make use of a liquid suspended gyroplatform/computer plan. This was the first time China's rocket technology employed a liquid suspended inertial device.

Solving how the control system adapts to the angular attitude error at time of ignition caused the technicians to sweat blood. A rocket going into flight from a submerged launch encounters great interference from the movement of the submarine and ocean currents. In addition, it is impossible to fit fins onto the rocket because of the limitations of the launch tube. Therefore, when the motor ignites and the control system begins operation, the rocket has already deviated far from the perpendicular; this is usually termed the ignition attitude error (also called initial attitude error). Whether or not the rocket can eliminate this error after emerging from the water, and whether or not the control system is able to correct the rocket's attitude as planned figures into the success or failure of a launch. Simulation testing of the control system was conducted in 1968, fully studying the control of initial attitude error and making initial clarification of the various factors affecting flight stability. It achieved a number of results and proposed solving the initial attitude problem using nonlinear control measures. However, while technically coordinating this plan in 1972, it was discovered that the gyroplatform's frame had insufficient rotational range. According to the gyroplatform design, the range of frame rotation already exceeded the values allowed by the design, so that the gyroplatform could not operate normally. This then required attitude control within the control system to not only place the rocket into its planned attitudinal angle, but also to not allow the gyroplatform frame to rotate beyond the prescribed limits. System design had

to first clarify the mutual relationship between the initial attitude and the gyroplatform while controlling the initial attitude error. Designers carried out research over a long time to try to estimate many worst case initial conditions for the pitch, drift, and roll of the platform frame's maximum rotational limits. This research supplied a scientific basis for accurately determining the rocket's launch conditions.

The miniature 3-axis fluid suspended gyroplatform is a precision component, and coupled with the unique requirements of a submerged launch, presents even greater developmental problems. Moreover, the organization developing the gyroplatform was located in the Sanxian mountain region where lines of communication were inconvenient, factory and housing accommodations were crude, and production and living conditions were very inferior. In order to produce our solid fuel rocket at an early date, a large number of designers, workers, and cadres decided to contribute their youth and total energy to China's aerospace industry. From the beginning of 1970, starting off with basic technical work such as components, the gyro, and the accelerometer, they organized broad technical cooperation. At the end of 1971, the first actual test platform came out of final assembly, and the results of testing showed its performance to be regular but its technical standards not up to requirements. Using this as a basis, technical assaults were then made on important areas based on control system requirements. This included such things as miniaturizing the gyroplatform structure, improving its operational reliability when subjected to attitude error, and reducing gyro drift. In November 1975, National Defense Science and Technology Commission Chairman Zhang Aiping went and inspected the gyroplatform development organization in the Sanxian area. With his encouragement, all the workers made persistent efforts to advance and perfect the design, and in 1976 produced four prototypes which completed the platform development process.

Aside from the critical technologies involved in a submerged launch, miniaturizing the electronics developed for all the systems onboard the rocket was a prominent problem. To expose all conflicts for instrument space at the earliest time, while the assembly plant had not yet been constructed, simulated fitting of instrumentation took place in offices. To miniaturize the instrumentation, the National Defense Science and Technology Commission in 1970 organized all developmental elements to jointly participate in tackling control system miniaturization. Working from components and circuit design, they stressed tackling projects such as linear integrated circuits, digital integrated circuits, and lightweight shielded cable. They also asked each element to take initiative in assuming responsibility for difficult problems, and to reduce the dimensions of each item for which they were responsible as much as possible, giving the "space" to others. All organizations developing the electronics promoted a cooperative atmosphere where they kept problems for themselves and gave easier things

to others. Measures were diligently taken to select component devices and parts, design circuits and integrate the whole, and plan for mounting the instruments and produce vibration dampening structures for them. With everyone's efforts, the primary electronics and calibration network of the control system was implemented on integrated circuits, greatly reducing the dimensions of the prototype and solving the problem of the instruments not fitting in the allotted space. Outstanding among these miniaturization efforts was that of the Lishan Microelectronics Research Institute in developing the guidance computer which used medium-small CMOS integrated circuits.

Another crucial technology was the primacord [literally, "focused (or shaped-charge) explosive cord"] used to separate the first and second stages of the two-stage solid fuel rocket. According to foreign reports, primacord was already used on rockets, but the technology had not been revealed. For this reason, we had to rely on ourselves to explore this problem. Since there were no production or testing facilities for primacord, it was necessary to handcraft a batch of experimental explosive cord in an unheated earthen building. In October 1971, the experimental cord was hung from the fork of a large tree in an empty, remote area, and completed the first full-size severing and separation test. This is how China's self-developed primacord came into the world. After further refinements and several hundred small tests, in 1975 an actual article was detonated, severing the rocket's outer layer and testing separation, thus completing primacord development. Primacord was the solution to the difficult problem of solid fuel rocket stage separation which was not easily solved with multiple explosive bolts. This was a breakthrough and creation which took China's multi-stage rocket separation technology from connecting and separating stages at points, to using integrated connection and linear severing and separation.

In September 1977, the CPC Central Committee approved placing the underwater launched solid fuel rocket among the three top priority aerospace engineering projects. Organizational measures were then taken to accelerate the development of the entire model. At the end of 1978, in order to strengthen the organizational guidance for solid fuel rocket development, it was decided to give the 2d Research Institute of the 7th Industrial Ministry the responsibility for coordinating overall technical work. The technical direction system with Huang Weilu as chief designer was gradually perfected, and a perfected solid fuel rocket administrative direction and dispatching system was established with Vice Minister Cheng Lianchang [4453 6647 2490] and 2d Research Institute Director Chai Zhi [2693 1807] assuming responsibility for direction and dispatch at the department and institute levels, respectively. Strengthening organizational guidance and establishing a technical responsibility system greatly speeded the development of the solid fuel rocket. Development of the solid fuel motor, gyroplatform, servo mechanisms, and remote sensing system made outstanding advancements.

In 1979, six improved rocket models again successfully completed submerged launch testing, and this type of rocket entered the test sample stage.

Sample designs for all the solid fuel rocket's subsystems were finished in 1979. Beginning in the first half of 1980, the parts, instrumentation, and complete accessories for the test sample's subsystems were separately given comprehensive testing for system certification, and the entire rocket went through electrical checkouts and comprehensive ground tests such as an ignition test of the swiveling nozzle jointly involving the servo mechanisms, body structure, and first-stage motor; the second-stage motor and secondary injection system went through simulated high altitude ignition tests; and stage separation tests on the ground were carried out on the first and second stages, and the rocket airframe. Approaching from different angles, these tests further evaluated the correctness of the design and the reliability of the equipment.

In the second half of 1980, the solid fuel rocket entered the stage of final assembly and checkout. Ensuring the quality of the rocket's final assembly checkout is of the utmost importance to ensuring the success of a flight test. An important goal of this is to eliminate extraneous material from within the rocket. This requirement would not seem to be difficult, yet it is actually hard to accomplish. Since the rocket is assembled from tens of thousands of parts and there are hundreds of personnel involved in the work, it is hard to avoid having some small tools, extra nuts and bolts, or wire or solder snippings get into the body. The objects are small and are produced by many things for many reasons, making it difficult to prevent this sort of occurrence. After the solid rocket final assembly plant received the final assembly task, strict work regulations were put into effect and discipline strengthened. First, they controlled the distribution of parts, from instruments and electrical cable to small bolts, making sure that the number given out was exactly the number needed, not one more or less. Second, they strictly controlled the tools used on the assembly shifts, consolidating them in one place and doing an inventory after each shift. At the same time, rules and regulations were strictly enforced. It was clearly stipulated that most work procedures would be conducted using two teams and for key procedures, three teams. That is, one team would be the primary operators and the second team would supervise (their responsibility being equal to the first team), while the third team would conduct specialized inspection. If the third team could not come to an agreement, the work was not permitted to progress independently. At the same time, superfluous personnel were strictly kept from the assembly area. Owing to the strict and meticulous heightened control exercised by all of the assembly personnel, the requirement for no extraneous objects was ultimately achieved.

During the period when the final assembly plant was assembling various test configurations of the flight test rocket, a heavy rainfall in August 1981 caused torrential

flooding in the mountains where the gyroplatform development organization was located. More than 50 kilometers of roadway were chopped into dozens of sections and two of the three bridges within the plant area were washed away; two production lines and a workers' mess hall were buried and destroyed by a mudslide; communications, power, and transportation were all cut off; some of the living quarters collapsed and there was an urgent need for food and medicine, placing the entire plant into a predicament. During this emergency, the Party and nation carried out timely rescue and support. In the face of disaster, the entire plant conducted an emergency mobilization. The workers went into the water and mud to hurriedly dig out the buried facilities, quickly establishing a communications link with higher authorities, and actively working to restore production. Despite this great disaster, they were still able to produce three gyroplatforms ahead of schedule and supply them to the final assembly plant for use in the flight test rocket. With the roadway still in a state of disrepair, the scientific personnel, carrying the main frames of the platforms, drove for several hours over rutted roads, putting the parts on their backs where the vehicles could not pass, crossing mountains and valleys, and rushed to a neighboring railroad line where they finally took a train and delivered the platforms to the final assembly plant on time.

Flight test work was first conducted on a ground launch platform. In June 1981, China's self-developed solid fuel rocket made its initial liftoff from the launch platform, following its planned trajectory into the blue skies and achieving a complete success for the flight test. This historically significant victory opened a new page in the history of China's solid fuel rocket development. The Central Military Commission sent a cable congratulating the success of this test.

Following this, in January and April 1982, two successful ground-launched flight tests were conducted from the launch tubes. One of these flights was launched with ignition attitude error artificially induced after the rocket left the launch tube. This evaluated the adaptability of the control system and the rocket's stability in flight.

The flight tests from the two types of land launch configurations completely verified the accuracy of the rocket program, the compatibility of its systems, and the reliability of its equipment. This created conditions for conducting a submerged test launch from a submarine.

To organize the implementation of the solid fuel rocket's first ocean flight test, as early as March 1980 the National Defense Science and Technology Commission and the Navy jointly established a naval supreme command to organize the troops needed for testing, allocate vessels for the test fleets, fix a test area, and inspect all

the preparatory work at observation platforms and stations. Before the rocket even set off for the testing range, all the branches of the PLA responsible for this test had struggled at their individual posts and completed preparations.

Before the flight test began, under the unified command of the test base and with the firm guidance of chief designer Huang Weilu and test group director Wang Zhaoqi [3769 0340 7784], personnel participating in the test earnestly solved technical problems which materialized during the on-site checkout, successively completing checkout preparations on three rockets.

On 12 October 1982, hydrological and meteorological boats, along with naval air defense helicopters, were busy measuring relevant data in the launch area; formations of surface escort vessels and observation ships left their piers and the experimental submarine carrying the solid fuel rocket also slowly departed from the harbor. It went into the open sea, dived to the launch depth, and entered the launch area at the appointed time. The time of launch pressed nearer. "T minus 5 minutes," and the covers of the submarine's launch tube slowly opened. "T minus 1 minute," and the tracer buoy on the water's surface ignited, the motor's safety bolts opened, all systems were suddenly shifted to their own power, the testing connector plugs automatically dropped off, the launch control platform announced that "everything is in order," the "ready for launch" light lit up, and the submarine's captain gave a resolute command to launch. In an instant, the rocket was pushed from the launch tube into the green sea by the strong pressure from the expanding gases. First-stage ignition normal! Procedure turn normal! Second stage separation normal!... The rocket sped toward the planned ocean area (that is, a circular area with a radius of 35 nautical miles whose center was 28°13' N, 123°23' E).

The submarine submerged launch of the solid fuel rocket was a success! Filled with victorious joy, everyone congratulated each other. China's first submarine-launched solid fuel rocket was born. The CPC Central Committee, State Council, and Central Military Commission sent congratulatory cables, pointing out that "this is yet another victory for the Party's policy of independent action and self-reliance, and indicates yet another new development in China's launch vehicle technology."

[Captions for photos 35-41]

35. Carrying the 300mm motor into the mountains.

36. Solid fuel apogee motor.

37. Solid fuel motor.

38. Primacord experiment.

39. Vibration testing of the entire rocket.



40. The rocket during checkout and inspection.

41. Submerged launch of the solid fuel rocket.

#### **Use of Special Troops in Local Conflicts**

40050977a Beijing JIEFANGJUN BAO in Chinese  
14 Mar 86 p 3

[Article by Zhang Taiheng [1728 1132 1854]: "Local Conflicts and Special Troops"]

[Text] When warfare entered the nuclear age the structure of the "nuclear balance of power" restricted the use of nuclear forces. For a fairly long period of time it is unlikely that a world war will be fought. However, the various contradictions in the world have not vanished, and the elements of antagonism still exist. The contention between the hegemonists is manifested in a new form. When the energy of warfare cannot suddenly break out in total war, it will gradually be emitted in the form of local conflicts. After World War II, following the changes in the development of the political, economic, and military structures, local conflicts have been fought without break. Therefore, to safeguard its national interests, a country, when determining the strategy for developing its armed forces, not only must consider how to make good preparations for dealing with a world war in the future, but also must consider how to be prepared to deal at all times with local conflicts that break out suddenly, and must coordinate the two preparations organically.

Because of the closeness of the economic ties between the countries of the contemporary world, the world economy is increasingly being politicized while world politics are increasingly being made economic. For their own interests all countries, consciously or unconsciously, have formed an intricate network of international relations, placing themselves in a certain political, military, economic, or regional international system. This complicated international strategic structure, which is difficult to deal with, has determined a series of characteristics in local conflicts.

First, there is the increase in the political control of military affairs. Under many circumstances, the aim of a local conflict is not, in the end, completely attained by military actions, but is resolved by coordinating military actions with political and diplomatic measures. Military actions cannot in the slightest be separated from the objective for them stipulated by politics; at times there should be precise, effective actions to serve military diplomacy. This requires the close cooperation and coordinated unity of the military aspects in politics, military affairs, and diplomacy. Second, the scale of the war is limited. Taking into consideration the allied forces behind the belligerent countries and world opinion, with regard to the selection of the operational objective, the adoption of attack measures, and the depth of penetration into the enemy country, in general the other side's existence is not in imminent danger, the conflict is not

escalated, and greater political passivity is not caused. Because the conflict's objective is limited, the degree of freedom in using the means of war is subject to various restrictions, and this necessitates that the situation be remedied by more flexible tactical actions. What is intriguing is that in some local conflicts there is an outcome in which the winner, of course, had cause for cheering and rejoicing while the loser, as in the Vietnam War, saves "face." This is one reason for the unpredictability and frequency of the outbreaks of local conflicts. Third, in a local conflict the value of time is greatly increased. The specific manifestations of this fact are: First, the various time factors restricting the conflict must be considered, and the optimum time for waging the conflict must be meticulously selected. Second, the operational objective must be attained within an extremely strict time limit. For example, when Israel was deciding the operational time for its invasion of Lebanon, it not only made use of the opportunity provided by the fact that the eyes of the whole world were fixed on the Malvinas Islands War, but also took into consideration the time that world opinion would be formed and the time that there would be a joint reaction, even taking into consideration the place where the UN permanent secretary general would be. Accordingly, it decided to start the war on 4 June 1982. The war was over in 5 days, and in 3 days the city of Beirut was under siege. The fourth characteristic is that the operational measures in a local conflict possess a very strong focused nature, even to the extent of employing the most modernized weapons and equipment and an attack pattern of the "surgical type." At a time when the allied organizations in the world have not yet reacted, the conflict becomes a fait accompli and is over. Most local conflicts occur in strategic border area or disputed areas. The selection of the conflict space is limited; also, in most places where there are local conflicts the geographical environment is exceptional and the battlefield is narrow and small. Thus, fairly high demands are imposed on the quality, scale, and adaptability of the units thrown into the conflict. Fifth, a local conflict cannot be separated from the coordination to deal with the forces of a full-scale war. Strong forces to deal with a full-scale war can produce a threat to the belligerent countries, especially to the supporting forces behind them, and this threat prevents the escalation of the conflict. In brief, a local conflict is a special war waged under specific conditions and focused on a specific objective.

With its characteristics a local conflict even more requires special operations troops and tactics suited to it. For example, a local conflict generally breaks out fairly suddenly, and this means that units must be rapidly deployed in the appropriate places in the shortest time possible. In a local conflict, the scale is fairly small, the terrain in the operational area is special, and the environmental conditions are complex. Therefore, the traditional group army and heavy equipment are not completely suitable. The ancients said, "Use the few in

defiles, and use the many on easy ground." In mountainous and hilly jungle and in other regions that are unfavorable for the deployment of large troop formations, to blindly stress "killing a chicken with a butcher knife" is bound to cause an extremely great waste of troops and ammunition. At the same time, if the military force exceeds the capacity of the battlefield, the display of its strength will be inhibited. In local conflicts under modern conditions, because advanced weapons and equipment are thrown into the battlefield, the past idea that quantity subdues the enemy has been replaced by the idea that quality subdues the enemy. From an extensive look at the local conflicts that have occurred after World War II, we see that, except for the local conflicts in Korea, the Middle East, and between Iran and Iraq, which employed large troop formations reflecting the full-scale confrontation between the forces of the two warring sides, in the other local conflicts prominence was given to attacks by small detachments. Even the several Middle East wars all focused on specific objectives and adopted operations by special troops with specific tactics.

However, war always makes the difficult problems the turning points for seeking new measures. A local conflict breaks up large troop formations and draws special troops into the act. This is because the weakness of a large troop formation is precisely the strength of special troops. The special operational environment of a local conflict is precisely the stage on which special troops can give full play to their capabilities. In recent years many countries, in line with the needs of local conflicts, have vigorously strengthened the building of special troops. From carrying out missions in accordance with frontal operations, such as going behind enemy lines to rescue hostages, sabotaging important targets, and destroying small enemy forces, the special troops have developed to a point where they primarily undertake frontal operation missions. They have developed from being troops who played a minor "supporting role" to being the "picked heroes" of the ground forces.

According to briefings on relevant data, modern special troops have the following main characteristics: First, their structure is small but complete and their functions are diversified. Their personnel have been carefully chosen and have undergone the highest degree of military training and survival training. Every combatant possesses superb military skills and political quality as well as a strong initiative. They are equipped with the most modernized superior and portable weapons and equipment. They either get ample air transport support or are provided with helicopters. The troops are kept at the highest degree of combat readiness, and at all times

they are able to reach operational sites in the shortest possible time. Their communications and liaison are absolutely reliable, and the "objective-type" command mode is practiced on them. Second, they make the offensive the main means of operations, make the objective clear, act resolutely, are adept in making surprise attacks, and constantly employ tactics that catch the enemy unawares. Third, focus is put on the nature of different crises, the degree of the mission's complexity, the principle of using the smallest number of troops possible, and the precision application of force. The relevant special detachment undertakes a single action in a mission. With regard to a complex situation that requires combined operations by all arms before the mission can be completed, special troops are transferred from all branches of service, as are specialized units for use in a certain geographical environment, and, like building blocks, are flexibly organized into groups, so that they possess modernized and varied operational functions. Fourth, they become an independent arm and are placed under the leadership of a special organization, etc.

Following the strategic change in the guiding ideology for building our armed forces, the PLA entered a new period. Marked successes have been obtained in the streamlining and reorganization of the units and in the reform of the establishment and system of organization. The peaceful period of relative stability provides the PLA with the opportunity to accumulate strength and to seek fundamental developments. However, we should soberly see that the fierce contention between the superpowers in the Asian and Pacific Region has created a complex environment on China's periphery, and that local conflicts are a real threat to our territorial security. Therefore, we should, based on forecasts of the peripheral environment, draw on the experiences of foreign armies in building special troops, and organize and train a contingent of special troops that possess distinctive Chinese features, so that China's armed forces become multilevel and diversified. This is something that both suits the long-term development goals of the PLA and is of practical significance. During its operations to protect border and coastal security, this contingent of special troops will accumulate experiences for operational training that will provide a reference for the modernization of the regular corps. The strengthening of the operational capability of the regular corps will become a powerful backing for the special troops. The two will promote each other, a situation that will certainly accelerate the modernization of the PLA and greatly strengthen our national defense forces.

**Chiang Ching-kuo's Personnel Policy Analyzed**  
40050781 Hong Kong KUANG CHIAO CHING [WIDE  
ANGLE] in Chinese 16 May 87 pp 46-51

[Article by Ting Hsiu-chu [0002 4423 3796]: "Chiang Ching-kuo Plays the Taiwan Card"]

[Excerpts] Recently there was a string of large-scale transfers among Taiwan's government and military personnel, in which two major characteristics of Chiang Ching-kuo's personnel policy were clear: first, he installed close relations and trusted confidants; and second, he further played the "Taiwan card," leaning toward the trend for "Taiwanese ruling Taiwan."

In the KMT's party affairs system, the son of Sung Ta [1345 6671], Chiang Ching-kuo's sworn brother, Sung Chu-yu [1345 2806 3542], 45 years old, noble and dignified, eloquent and trenchant, has taken the seat of honor as the deputy secretary general of the KMT Central Committee. He is Ma Shu-li's [7456 2885 4409] most powerful assistant. He is now the strongest leading player running the KMT's party affairs, and has become Chiang Ching-kuo's elite aide on party affairs. Looking to the future, if Sung Chu-yu becomes the KMT's secretary general, he could take the post of secretary general in the President's Palace, or also could become the vice president or president of the Executive Yuan.

With the support of Chiang Ching-kuo, Sung Chu-yu's rise in career is extremely clear, and it is no wonder that he and Chang Hsiao-yen [4545 1321 0917] are called Taiwan's "stars of tomorrow."

In addition, Chiang Wei-kuo [5592 4885 0948], secretary general of the "National Security Council"; Ma Ying-chiu [7456 5391 0046], KMT deputy secretary general; Chao Shou-po [6312 1343 0590], chairman of the "Social Work Commission" of the KMT Central Committee; Cheng Hsiu-hsin [6774 1800 7160], chairman of the "Maritime Work Commission" (the son of Cheng Chieh-min [6774 0094 3046], head of the espionage agency and trusted confidant of Mr Chiang's); Huang Kun-hui [7806 2492 6540], chairman of the "Youth Work Commission"; Tai Jui-ming [2071 3843 2494], chairman of the "Cultural Work Commission"; Chen Chin-jiang [7115 6855 6245], principal member of the Taipei City KMT Headquarters; and Huang Shun-te [7806 7311 1795], principal member of the Kaohsiung City KMT Headquarters—all of these men who hold key posts in the party may be said to be trusted confidants or trusted subordinates of the Chiang family.

From a look at some senior officials in place in the "Executive Yuan," there are now: Hsiao Tien-tsan [5618 1131 6247], "Political Committee member"; Wu Pai-hsiung [0702 0184 7160], "minister of interior"; Shih Chi-yang [2457 0796 2254], "minister of legal affairs"; Wei Yong [7614 6978], principal member of the "Research and Testing Committee"; Chen Lu-an [7115 1462

1344] (son of Chen Cheng [7115 6134]), principal member of the "National Science Committee"; and Chien Chun [6929 4783], "minister of finance"—all of whom long ago rose to important posts. In the recently reshuffled "Executive Yuan," Lien Chan [6647 2069], its vice president; Kuo Nan-hung [6753 0589 1347], "minister of communications"; Kuan Chung [7070 0022], principal member of the "Youth Auxiliary Committee"; and Shao Yu-ming [6730 3768 6900], "director of the News Bureau," have climbed up even more vigorously.

In diplomatic circles, Chien Fu [6929 1788], Taiwan's representative in America on the "North American Coordination Committee," long ago possessed the power of a minister. He has handled Taiwan-U.S. relations for the past several years, during which his position has increased in importance. In Chiang Ching-kuo's mind, Chien's status is not inferior to that of "Foreign Minister" Ting Mao-shih [0002 2021 2514]. In the future, Chien Fu will remain a leading player in foreign policy-making circles.

**Taiwan-Born Politicians Who Are Technical Bureaucrats and Who Have Climbed to High Levels:**

- Li Teng-hui, 1923; Doctor of Agricultural Economics, Cornell University, United States; "vice president"; member of the Standing Committee of the KMT Central Committee
- Lien Chan, Tainan, 1935; Doctor of Political Science, University of Chicago, United States; vice president of the "Executive Yuan," member of the Standing Committee of the KMT Central Committee
- Shih Chi-yang, Taichung, 1935; Doctor of Law, University of Heidelberg, West Germany; "minister of legal affairs"; member of the Standing Committee of the KMT Central Committee
- Kuo Wei-fan [6753 3634 5672], Tainan, 1937; Doctor of Education, University of Paris, France; "member of the Political Committee"; member of the KMT Central Committee
- Kao Ming-hui [7559 6900 6540], Taipei, 1931; Doctor of Political Science, University of Southern Illinois, United States; "deputy secretary general of the KMT Central Committee"; member of the KMT Central Committee
- Lin Ching-chiang [2651 3237 3068], Yunlin, 1940; Doctor of Education, University of Liverpool, England; director of the Department of Education in the Taiwan provincial government
- Kuo Nan-hung, Tainan, 1936; member of the Taiwan Chiao Tung University Research Institute; Doctor of Electrical Engineering, Northwestern University, United States; "minister of communications"

Chang Hsiao-yen [4545 1321 0917], vice chairman of the Standing Committee in the "Ministry of Foreign Affairs," is the son of Chiang Ching-kuo's concubine. Obtaining "promotions out of order," he has risen extremely fast. After Ting Mao-shih took charge of



foreign affairs, it was inevitable that Mr Chang would become an "underground minister." It may be inferred that in the future his weight in diplomatic circles will gradually become heavier.

In the financial and economic circles, talented persons who have connections with Mr Chang are being promoted more than one grade at a time, and this trend is particularly evident. Wang Chien-hsuan [3769 1696 3551], "vice minister of economic affairs"; Yang Shih-chien [2799 0013 4873], director of the "Bureau of Industry"; Hsiao Shih-chang [5618 4258 7022], director of the "International Trade Bureau"; Li Ching-chung [2621 1987 0022], director of the "Science and Technology Advisory Section," the son of Li Huan [2621 3562]; Chen Ting-an [7115 5121 1344], chairman of the "Tax Reform Commission"; and Yu Cheng [0205 2973], vice governor of the Central Bank—all of these men are in the group of aggressive successors.

In Taipei there have been large-scale personnel transfers, but Chiang Ching-kuo's criterion for making use of people has not yet departed from that of close relatives, family retainers, ushers and guards, and relatives by marriage. His style still falls short of the characteristics of Taiwan's society. The shortfall is not in age but in status, that is, the countless ties between them and Mr Chiang's clan and the senior statesmen and powerful courtiers of the party and the state.

Another characteristic of this major reshuffle was the vigorous installment of native Taiwanese, thus further playing the "Taiwan card."

In the 40 years that the KMT has been in Taiwan there have been three periods in which, on the basis of the needs of the situation between "host and guest," it has installed Taiwan politicians. In all cases its real purpose has been based on the needs of its rule. For example, a characteristic of each period has been that the KMT has readjusted some of its ruling policies and leading groups in order to maintain its power and interests.

The three periods were each set against a different background of the times.

In 1947 the KMT authorities on Taiwan brought about an incident in which the populace was suppressed. Called the "February 28th Incident," it was a case of the people being driven to rebellion by tyranny and was a spontaneous action by the masses. Because it was ruthlessly suppressed, it caused a deep rift between the KMT authorities and the local Taiwan people, and produced distrust and spiritual wounds that have not been healed to this day.

At the beginning of the 1950's, in order to pacify the undercurrents derived from the "February 28th Incident" and the internal and external pressures caused by America's "China White Paper," Chiang Kai-shek promoted some Taiwan-born politicians in an effort to

embellish the situation, but only in local governments—17 persons, including Chiang Wei-chuan [5592 3262 1557] (concurrently "director of the Civil Administration Department"), Hsu Ching-chung [1776 1987 6945] (concurrently director of the "Agriculture and Forestry Department"), Yang Chao-chia [2799 5128 0857], Yu Mi-chien [3236 1736 1017] (concurrently "mayor of Taipei"), and Li Lien-chun [2621 6647 2504] (concurrently "director of the Grain Bureau") (74 percent of the 23 provincial government committee members). In the 1960's, because of the pressure of Lei Chen's [7191 7201] FREE CHINA incident and the upsurge of liberalism in the United States (Taiwan's KMT does not like the Democratic Party, but Kennedy won the 1960 presidential election), the United States had enormous influence on Taiwan. To justify himself to the U.S. side, Chiang Kai-shek, as a token, made some personnel reshuffles for "Taiwanization." For example, in May 1960 Lien Chen-tung [6647 7201 2639] was appointed "minister of interior," in February 1961 Huang Kuo-shu [7806 0948 2579] was promoted to "president of the Legislative Yuan," and in November 1961 Huang Chao-chin [7806 2600 3830] and Chiu Nien-tai [6726 1819 0669] were elected Standing Committee members of the KMT Central Committee

#### Taiwan-Born Politicians Recommended for "Election" by the KMT:

- Lin Yang-kang [26541 3152 3263], Nantou, 1927; Taiwan National University, magistrate of Nantou County, president of the "Judicial Yuan," Standing Committee member of the KMT Central Committee
- Huang Tsun-chiu [7806 1415 7264], Changhua, 1922; KMT Central Police Officers School, "member of the Control Commission," "vice president of the Legislative Yuan," Standing Committee member of the KMT Central Committee
- Liu Kuo-tsai [0491 7059 2088], Miaosu (Hakka), 1911; Doctor of Law, Kansai University, Japan; "member of the Taiwan Provincial Assembly" and "member of the Legislative Committee"; "vice president of the Legislative Yuan"
- Lin Chin-sheng [2651 6855 3932], Chiayi, 1916; graduate of the Law Department of Tokyo's Imperial University, Japan; magistrate of Yunlin and magistrate of Chiayi; "vice president of the Examination Yuan"; member of the KMT Central Committee
- Kao Yu-shu [7559 3768 2579], Taipei, 1913; BS in science and engineering, Waseda University, Japan; mayor of Taipei; "member of the Governmental Affairs Committee"
- Chang Feng-hsu [1728 6265 4873], Pingtung, 1928; MA in Political Science, University of New Mexico, United States; "member of the Taiwan Provincial Assembly"; magistrate of Pingtung County; "member of the Governmental Affairs Committee; member of the KMT Central Committee"
- Wu Pai-hsiung, Taoyuan (Hakka), 1939; BA, Cheng-kung University, Taiwan; member of the Taiwan Provincial Assembly and magistrate of Taoyuan

- County; "minister of interior"; Standing Committee member of the KMT Central Committee
- Kao Yu-jen [7559 5148 0088], Tainan, 1934; BA, Taiwan University; "member of the Taiwan Provincial Assembly" and magistrate of Tainan County; president of the "Taiwan Provincial Assembly"; Standing Committee member of the KMT Central Committee
  - Chang Chien-pang [1728 1696 6721], Ilan, 1930; Doctor of Education, University of Illinois, United States; "member of the Taipei Municipal Assembly"; president of the "Taipei Municipal Assembly"; Standing Committee member of the KMT Central Committee
  - Shao En-hsin [6730 1869 2450], Taipei, 1924; elementary school graduate and senior middle school qualification certificate, "magistrate of Taipei County," member of the KMT Central Committee
  - Chen Chin-jang, Taipei, 1930; representative of the "National Assembly," principal member of the Taipei City KMT Headquarters
  - Su Nan-cheng [5685 0589 2052], Tainan, 1936; BA, Chengkung University; "member of the Tainan City Assembly" and "mayor of Tainan City"; mayor of Kaohsiung City
  - Chen Meng-ling [7115 1322 6875], Taichung, 1934; BA, Tanchiang University; magistrate of Taichung County; "director of the Civil Administration Department in the Taiwan provincial government"
  - Wu Shui-yun [0702 3055 7189], Hualien, 1930; BA, Taiwan Normal University; "member of the provincial assembly" and "magistrate of Hualien County"; deputy chairman of the "Cultural Work Commission" of the KMT Central Committee

The true beginning of the playing of the "Taiwan card" was when Chiang Ching-kuo promoted the "promoting Taiwan youth" policy after he became "president of the Executive Yuan" in 1972. At that time the KMT had been through external shocks at home and abroad: the incident of the defense of the Kouyu Terrace, Kissinger's secret visit to China in the summer of 1971, Taiwan's withdrawal from the United Nations, President Nixon's visit to China in 1972, and the establishment of diplomatic relations between China and Japan. To "improve the defense of Taiwan" and to display the strong political flavor of the Chiang family dynasty, the KMT had to install a large number of Taiwan-born figures and to wield the magic wand—the "Taiwan card"—for externally gaining U.S. favor and for internally mitigating the contradictions among the people. When, at the end of 1978, China and the United States announced the establishment of diplomatic relations, the highest level of the KMT was extremely nervous because it could not get along without U.S. support. To insure the survival of the KMT, on the grounds that the United States must insure the security and happiness of the 18 million people in Taiwan, it called for a "Taiwan relations law" that would insure Taiwan-U.S. relations in the future.

From the beginning of the 1970's to the 1980's, with Chiang Ching-kuo's "policy of promoting Taiwan

youth," there were admittedly a large number of promotions of Taiwan-born people to be new officials, thereby playing down the image of "a minority of people from other provinces ruling the majority of the people in the province." However, everybody knows that this tactic of "letting Taiwanese rule Taiwan" only creates a second generation of close bodyguards, who "only have the power to implement but not the power to make policy decisions." The supreme power is still in the hands of the Chiang family, and it holds even more firmly the military power and the power of the espionage, intelligence, and control system. This means that Taiwan-born people can become the Taiwan vice president, the vice presidents of the five yuan, the mayors of Taipei and Kaohsiung, and the ministers of interior, legal affairs, and communications. But for personnel in the highest level of the military, on the Security Council, in the intelligence and control system, up to all the supreme policy-making bodies, the old system is still in place.

However, this arrangement for Taiwan-born people to have only the power of "assistants" cannot satisfy the demands of the new situation. A break with this situation has occurred over the past 2 or 3 years, and the Third Plenary Session of the KMT Central Committee in March 1986 was the line of demarcation.

Chiang Ching-kuo, being old and sick, obviously wants to make preparations for the situation after his death. Before his approaching death he wants to build up quickly the strength of his close bodyguards and of an expanded new palace faction. The reinstatement of Chiang Wei-kuo, Sung Chu-yu, Ma Ying-li [7456 5391 0500], Chang Hsiao-yen, Chou Chung-nan [6650 0112 0589], and Yen Pai-chien [6056 4102 6197] was the main move in this overall plan. On the other hand, through the promotion of democratization he seeks America's tacit support in order to continue and insure the greatest interests that the Chiang family's second and third generations can get. Various signs show that for several years in the foreseeable future, on the basis of the needs of the internal and external situations, Chiang Ching-kuo will play the "Taiwan card" more quickly in order to deal with the Chinese communists' steady advance in diplomacy and in the united front, dispel the shock of Deng Xiaoping's idea of "one country with two systems," and mitigate the gradual upsurge in the Taiwan people's consciousness. Under this premise the KMT will have no choice but to "open" the thrones of the several "yuan presidents" to the local people of the island of Taiwan.

Among the five yuan presidents in the Taiwan KMT government, the presidency of the Control Yuan has been "given" to a Taiwan-born figure, Huang Tsun-chiu [7806 1415 4428], and in the "Legislative Yuan" the power combination of Ni Wen-ya [0242 2429 0068] and Liu Kuo-tsai is being maintained. Huang Shao-ku [7806 1421 6253], the 86-year-old president of the "Judicial Yuan," has insisted on tendering his resignation, and

another Standing Committee member of the KMT Central Committee, Taiwan-born Lin Yang-kang, will take over. It is said that Kung Te-cheng [1313 1795 2052], president of the Examination Yuan, is also going to retire. The yuan's vice president is Lin Chin-sheng, who faded from people's memory long ago. Therefore, the Examination Yuan presidency most likely will be opened up and become the third yuan presidency occupied by a Taiwan-born person. Among the Taiwan-born politicians, there is Chiu Chuang-huan [6726 0482 3562], an outlet for whom great pains have been taken to arrange, and his outlet is similar to that of Lin Yang-kang. It is not too likely that he will become the president of the "Executive Yuan," but Chiu Chuang-huan, who is tasting the flavor of being a "local chieftain," is not willing to "receive respectfully" the Examination Yuan, where the "seat of highest power is not important." It is said that, in hints through various pipelines, he is trying to change his fate.

**Taiwan-Born Rich and Powerful Politicians and Business Magnates in Enterprise Circles:**

- Lin Ting-sheng [2651 2185 3932], Taipei City, 1919; BA, Taiwan National University; chairman of the board of the "Tatung Related Enterprises" and president of "Tatung Industrial College"; Standing Committee member of the KMT Central Committee
- Ku Chen-fu [6581 2182 3940], Changhua, 1917; BA, Taiwan National University; chairman of the board of the "Taiwan-Nepal Related Enterprises" and chairman of the board of the "Taiwan General Textile Enterprise"; Standing Committee member of the KMT Central Committee
- Wu San-lien [0702 0005 6647], Tainan, 1899; Tokyo Commercial University, Japan; chairman of the board of the (Pitainan) Textile Group; national policy adviser in the "Presidential Palace"; and publisher of TZULI WANPAO
- Wang Yung-ching [3769 3057 1987], Taipei, 1917; elementary school graduate; chairman of the board of "Taiwan Plastics and Rubber," "South Asia Plastics and Rubber," and "Taiwan Chemical Weavers"

Chiu Chuang-huan does not want to be president of the Examination Yuan; it is said that what he covets is the throne of the "president of the Executive Yuan."

Last year 35 KMT "National Assembly representatives," including Chen Hsi-te [7115 6932 1795] and Huang Shu-wei [7806 2579 4885], jointly signed a proposal requesting that the Executive Yuan be reorganized by replacing the "financial and economic cabinet" with a "humanistic cabinet." This year Chao Shao-ching [6392 1421 1987] of the "Public Opinion Poll Foundation" announced the popularity standings of the senior officials, and Yu Kuo-hua [0205 0948 5478] was listed last with only 38.5 percent. That Wu Chun-ching [0702 2504 2532], the old legal authority, would expose Yu Kuo-hua's bar girl and financial scandals shows the drop in Yu Kuo-hua's popularity, and even the factions in the

party are beginning to attack him. Chiang Ching-kuo knows that, sooner or later, Yu Kuo-hua will fall from power. However, Yu is his most reliable confidant and "Mr Accountant," so while he makes a plan for the overall redistribution of power it is best for him to let Yu hang on tenaciously.

Nobody thinks Yu Kuo-hua will leave office this year. As for the selection of Yu's successor, it is understood that, when Chiang Ching-kuo called Li Huan [2621 13562] for secret talks, Li suggested that a Taiwan-born figure be made the president of the Executive Yuan, so as to further implement the policy of "localization." After hearing this suggestion, Chiang Ching-kuo nodded silently. Of course, we will have to wait and see what his future mood will be.

**Taiwan-Born Politicians With Origins in the Taiwan Governmental System:**

- Hung Tai-nan [3163 5270 0589], Nantou, 1913; Law Department, Imperial University, Tokyo; chief justice of the "Local Court"; political adviser in the Presidential Palace; Standing Committee member of the KMT Central Committee
- Chiu Chuang-huan, Changhua, 1925; MA, Political Science University; section member in the "Ministry of Personnel"; chairman—governor—of the "provincial government"; Standing Committee member of the KMT Central Committee
- Hsu Shui-te [1776 3055 1795], Penghu, 1930; MA, Japan; "director of the Pingtung Education Bureau"; "mayor of Taipei"; Standing Committee member of the KMT Central Committee
- Chao Shou-po [6392 1343 0590], Changhua, 1941; Doctor of Law, University of Illinois, United States; group leader of the "National Salvation Movement"; "chairman of the KMT's Central Social Work Association"
- Shih Chin-chih [2456 6855 3069], Tainan, 1928; MA, Taiwan Normal University; "principal of the Peimen Senior Middle School"; vice chairman of the Standing Committee of the "Ministry of Education"; member of the KMT Central Committee

If it is understood that Chiang Ching-kuo has formally put into effect the "policy of promoting Taiwan youth" since 1972, based on the subjective and objective needs of the situation, then, after Chiang Ching-kuo is gone the thorough implementation of this policy will be even more necessary. Therefore, while Chiang Ching-kuo still has the ability to arrange the transfer of power, it is not impossible that he will break with the usual practice of having people from other provinces be the president of the Executive Yuan. At the necessary time he could also make it hot for the Chinese Communists by telling them: you had better not push me too far, because if you do I will turn over all my power to the Taiwan people and let them rule Taiwan; in the end, with their prospects for self-determination, how will they regard you!



Going back to what has been said before, in essence in Taiwan, where what "one person" says counts, even if native Taiwanese get the posts of president and Executive Yuan president, they will still be nothing more than "sample newspapers" of the KMT, and real power will be held by an invisible hand behind the scenes. In the recent series of reforms carried out by Chiang Ching-kuo, people see that he does not really want to hand over power to statesmen and economists who are broadminded and who truly have in mind a glorious future for China. He has promoted a group of courtiers, confidants, and personal bodyguards. Thus, he could, after his death, cause a "geological fault," something about which many men of weight in Taiwan are deeply apprehensive.

**Semiretired Taiwan-Born Politicians:**

- Hsieh Tung-min [6200 2639 7036], Changhua, 1905; BA, Guangzhou University; "chairman—governor—of Taiwan Province" and "vice president"; "political adviser in the Presidential Palace"; Standing Committee member of the KMT Central Committee
- Tai Yen-hui [2071 3508 6540], Pingtung, 1909; Doctor of Law, Tokyo University, Japan; grand justice

- and president of the "Judicial Yuan"; "political adviser in the Presidential Palace"; member of the Advisory Committee of the KMT Central Committee
- Hsu Ching-chung [1776 1987 6988], Taipei, 1906; Doctor of Agriculture, Taiwan National University; "minister of interior" and vice president of the "Executive Yuan"; "political adviser in the Presidential Palace"; member of the Advisory Committee of the KMT Central Committee
- Li Lien-chun [2621 6647 2504], Tainan, 1904; graduate of Kobe Business College, Japan; "director of the Taiwan Provincial Grain Bureau" and "member of the Political Committee"; "national policy adviser in the Presidential Palace"; member of the Advisory Committee of the KMT Central Committee
- Tsai Hung-wen [5591 7703 2429], Taichung, 1910; Chiayi Senior Agricultural School, president of the "Taiwan Provincial Assembly," "national policy adviser in the Presidential Palace"

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